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NOTICE TO MEMBERSHIP

PROPOSED AMENDMENT TO ARTICLE 1 OF BY-LAWS

Article VII of the By-Laws of our Constitution states: "Any member may propose amendments to these By-Laws by submitting them in writing to the Secretary-Treasurer at least 45 days before the date of the next announced meeting, and the Secretary-Treasurer shall promptly notify all members that the proposed amendments will be open for discussion at the meeting. These By-Laws may be amended by a majority affirmative vote of the members present."

Therefore, the following amendment to Article 1, Section 2, of the By-Laws of our Constitution regarding dues will be presented for vote by the membership at the annual business meeting at Glenwood Springs, Colorado during our 46th Annual Meeting.

> "The annual membership dues, payable to the Association January first of each calendar year, shall be seven dollars ($7.00) for each member paying dues directly to the Association, and five dollars ($5.00) for each member paying dues through an affiliate association."

Open Letter to the Membership of the International Association of Milk and Food Sanitarians

The members of your Executive Board, as you well know, are deeply concerned with the affairs of our Association. They are continually seeking to evaluate the functions of the organization as they relate to the needs of and service for you, the members. From time to time reports have been presented for your consideration as it is realized that the strength of our Association lies in our affiliates and the support and guidance given the Association by the affiliates and the direct members.

It should be stated at the outset that our progress during the past eight years has been exceptional. Financially we have traveled the long road from a deficit in 1951 to a sound financial condition for the last several years. Membership has increased from 2100 to more than 4400; journal circulation has climbed from 3200 to better than 5400; our affiliates have increased in number from 11 to 29; and the contacts of our Executive Secretary with the affiliates has more than doubled during this period — 1951 to 1959. All this has been done without any increase in dues.

Our enviable progress to date has been due to the untiring efforts of many and in particular to the efforts of our congenial Executive Secretary, "Red" Thomasson. But our Association has grown to a point where management of the Journal and the Association office can no longer be considered a one-man assignment. We must continue to grow and continued growth can only be brought about by improvements in our operations.

Publication of the Journal of Milk and Food Technology is one of our most important functions. It is believed that improvements can be made in the Journal such as broadening the scope of coverage to include more articles on food and general environmental sanitation features; increasing the general appeal of the Journal to the membership with "grass roots" articles and an expanded News and Events section with items about people and our affiliates; establishing an editorial policy that would help the sanitarian formulate opinions based upon the backing of our Association; effecting prompt and timely reporting and publication of the Journal to keep the membership informed as things happen; improving the typographical clarity of the Journal; and in every way make our Journal an informative, current and authoritative publication.

The relationship between our Association and our affiliates is the basis for a strong organization. In this area liaison can be improved in a number of ways: for example, frequent contacts with the affiliates by the Executive Secretary and by members of the Executive Board to correlate the activities of affiliate and International committees, to provide assistance on registration of sanitarians, to aid in planning programs and activities when requested, and to bring about a strong active affiliate council. Improved Journal coverage of affiliate activities will keep the membership informed and do much to maintain a closer working relationship between our Association and our affiliates. The stronger and more active the affiliates the stronger will be the Association as a whole.

The need for these improvements has been recognized for some time and already action is being taken to bring some of these improvements. The News and Events section is now in the Journal and timely articles are being published. Members of the Executive Board are exploring ways and means of improving the physical operations involved in publishing the Journal. A special Advisory Committee has been appointed and is industriously studying many of these

problems.

The improvements we have discussed are important to our future and can be effected only by providing additional help to the present Journal staff. Such a move, of course, involves additional expenditure of funds which can be derived only through an increase in dues. The costs of printing, paper, postage, clerical help, travel, legal and professional fees, have steadily increased over the past eight years. Up to now, the profits from the operation of the Journal have been sufficient to absorb these increased expenses and still show a profit for the combined operations of the Association. However, this profit has gradually decreased over the past few years and is not sufficient to meet the expense of the proposed improvements.

It is the opinion of the Executive Board as well as many members of our Association, that the improvements we have discussed are of the greatest importance to our Association and that a reasonable increase in dues is necessary to provide the funds for these improvements.

Therefore the foregoing amendment to Article I, Section 2 of our By Laws is proposed for discussion and vote at our next annual business meeting.

The Executive Board feels certain that the membership will recognize the importance of these improvements and will indicate their desire for continued growth of our Association by their whole-hearted support of this proposed amendment.

Franklin W. Barber
President, IAMFS

FORTY-SIXTH ANNUAL MEETING
IAMFS, Inc.

AUGUST 26, 27, 28, 1959

HOTEL COLORADO,

GLENWOOD SPRINGS, COLORADO.

THE ELIXIR OF LIFE [1]

J. Roger Deas

American Can Company, New York

It is appropriate you hold your first joint meeting of the International Association of Milk & Food Sanitarians, the New York State Association of Milk Sanitarians and the Cornell Dairy Conference, at the Hotel New Yorker. For, three centuries ago the land on which this hotel is located was being used for that purpose you are dedicated to foster and improve. This was part of the farm and dairy land of the Mayor of New Amsterdam, Peter Stuyvesant. He prided himself in his farm's productivity and in the quality of his products. He wanted his farm to be—just like his silver peg leg—brilliant and spotless and conspicuous.

Had it not been for an incident some 294 years ago, this hotel would no doubt have been called the New Amsterdam, but, you will recall, in 1664 the British fleet suddenly appeared in the harbor and Captain Richard Nicolls rudely announced to Stuyvesant they were not only taking over his domain but they were changing the name in the honor of the new Duke of York.

But, that decade of the 1660's was one of compounded disaster for the British. In 1665 the Black Plague swept over London leaving in its wake 68,596 dead, every family felt the grim finger of death. Then came the holocaust of the Great Fire of 1666 destroying four-fifths of London with 272,000 acres burned; 13,200 houses and 87 churches destroyed.

Two famed authors wrote of these tragedies — Samuel Pepys, man of the world, realist, agnostic, viewed the destruction and wrote in his diary —

"All is death and despair. I do not believe we shall ever recover from this double tragedy."

Bishop Thomas Ken, man of God, witnessed the heroism, the courage, the faith of the people and wrote those words so well known to us today —

"Praise God from whom all blessings flow;
Praise Him, all creatures here below;
Praise Him, above, ye heavenly hosts;
Praise Father, Son and Holy Ghost."

Today we view the world with many divergent attitudes, many philosophies and we describe the world with many words, in many ways. There are those who continue to express fear, distrust, pessimism and concern. Yet, this fact is indisputable, that with mankind's sacred human abilities, no year, no day, no hour passes but what technological progress is being made, leading inevitably to that time when it will be physically possible for all people everywhere to live a full and healthful life.

To such an end is your organization dedicated, and to this end you have made your contribution handsomely, a contribution which, the papers being presented at this convention indicate, is being further accelerated.

With such a world in prospect, it behooves us to ask ourselves what we can do as a neighborhood of nations, as associations, as corporations, as thoughtful individuals to make sure this world of manifold blessings, also offers the satisfactions of living that come from peace of mind, freedom of spirit, thrill of accomplishment and the tranquility of love.

It seems that eternally there are three challenges—that our goals be the highest, that we share our knowledge, that we remember the God-given worth of the individual.

That our goals be the highest — — —!

In 1905 President Theodore Roosevelt wrote to his son, Kermit, these words — "Tell me a man's plans, let him demonstrate his willingness and ability to fulfill those plans, and I will prophesy the measure of his success."

In 1901 there came on the American scene the greatest city planner of this century, Daniel H. Burnham. (Robert Moses will deny this in the morning!) Daniel H. gained his first prominence in Chicago when he submitted the Burnham Plan for the Windy City. It called for an esplanade along the Lake Michigan waterfront, for the reversal of the Chicago River, for throughways to the outskirts of the city—plans which in that day everyone said were visionary, plans which today are a reality.

The greatest success Daniel H. had was in my native city of San Francisco in the years 1905 and 1906, when, at the cost to the citizens of $100,000 he sat high atop Twin Peaks, preparing the Burnham Plan for the City by the Golden Gate. He had four assistants and one 14 year old boy whose responsibility it was each morning to come charging up the hill with the provisions for the day, go down again, and come back again at evening to take the finished documents to be duplicated.

For better than ten months Daniel H. worked and then on April 13, 1906 he submitted his plan to the citizens, and they saw it was a magnificent document. Inside the front cover he put his philosophy

[1] Presented at the 45th Annual Meeting of the *International Association of Milk and Food Sanitarians, Inc.* in New York, September 8-10, 1958.

of city planning, he said –

"A plan is not just houses, and streets and parks. A plan is rather the outer manifestation of the needs of people."

On the first page he put his classic formula for successful planning, he said this –

"Make no little plans. They have no magic to stir men's blood and of themselves may not be realized. Make BIG plans, set your aims and objectives high, remembering that a logical and noble diagram once recorded will continue on with ever growing intensity. Make BIG plans!"

Then, he gave his plan–367 pages–and on the last page one word of warning –

"No plan is static we must ever be ready to meet the constancy of change."

And on the back cover his only bit of whimsy –

"The best laid plans of God, and mice and men, need a whale of a lot of selling now and then."

The city fathers were amazed by the plan and the press reported it, they said –

"Daniel H. this is a commendable plan. We notice you call for a 10 block civic center at the confluence of Van Ness Avenue and Market Streets, for tearing down all the slum areas South of the Slot, through Chinatown and throughout North Beach, you call for terracing Telegraph Hill and Nob Hill; an Atheneum on the top of Twin Peaks; bridge to the north shore and to the east shore; an elevated structure around the periphery of the city! Mr. Burnham this is a commendable plan but tell us just one thing–how do you propose to tear down all the buildings to put the plan into effect?"

The thing they didn't know was that Daniel H. had the whole thing wired with the Almighty and just 5 days later at 5:12 in the morning the earth shook and all the buildings fell down – and those that didn't fall down, burned up. The Burnham Plan could have gone into effect except for one thing, Daniel H. had gone off to do the Burnham Plan for New Orleans and there was no one to read the back cover – "The best laid plans of God, and mice and men, need a whale of a lot of selling now and then."

No one to read it except one 14 year old boy who, with his own personal, precious copy tucked under his arm, watched his own home burn to the ground. The years went by and the young man grew in stature and acquired much of the embellishments of life and submitted his candidacy for Mayor of San Francisco. He was swept into office and on the day of his inauguration he called in the press to give them his first program for San Francisco–a magnificent document–the Burnham Plan! He said, "I'm going to get the finest city planners to bring the plan up-to-date for 'No plan is static we must ever be ready to meet the constancy of change'–and on my planning commission I'm not going to put any political hacks, I'm going to put the finest salesmen I can find for 'The best laid plans of God, and mice and men, need a whale of a lot of selling now and then,."

The city planners went to work, they recommended five things –

1. A continuing Master Plan.
2. An agency to administer it.
3. A bond issue to activate it.
4. A highway through the heart of the city so transient traffic could by pass it.
5. Urban re-development legislation.

Perhaps you know the story of what happened. In 1947 the Master Plan was adopted; a planning commission was authorized to administer it; a bond issue of $212,000,000 was passed to activate it; any of you who have driven from San Francisco Airport to Oakland have gone on the by-passing highway; urban redevelopment legislation went up to the Supreme Court and back and the Western Addition is being cleared and free enterprise rebuilding, giving the city needed modern housing.

The Burnham Plan has become a reality–because it was a BIG plan and because there were those who realized that within a democracy you don't do things by compulsion but rather by persuasion and perserverance.

That our goals be the highest, that we share our knowledge – – – !

In the year 1900 the Editors of the *Atlantic Monthly* wrote to the Professor of Jurisprudence and Political Science of Princeton University asking, "Could you write a dozen articles on the objectives and ideals of modern education?" Woodrow Wilson wrote back and said, "Yes, I could write a dozen articles on the ideals and objectives of modern education, but I could not state them any better than the Master did in just a dozen words when he said, 'Ye shall know the Truth and the Truth shall make you free'." He said, "I could write a dozen books on the techniques of modern education but the one article that should be written is that which challenges all of our people at all times of the importance of the translation and transmission of information and inspiration to our neighbors."

On Kingshighway in the city of St. Louis stands Southwest High School. It stands on the top of a green knoll. It is a four-story red brick building, a magnificent structure. Across the facade are the statues of the five philosophers and the inscription, "Ye shall know the Truth and the Truth shall make you free."

One day in the spring of 1950 Raymond Brisbane walked through the portico of Southwest High just at twilight feeling a new sense of responsibility. He read the twelve words with new meaning for he had become Principal of Southwest High School – 1600 youngsters his personal responsibility to guide into the wonderment of the American way of life. His academic soliloquy swept over him.

But all of a sudden his reverie was disrupted by his awareness of an irritating noise, a sound like a

metallic mosquito. He looked across Kingshighway and there stood the little noisemaker itself—a modern industrial plant. It had the traditional U-shape design —administration here—manufacturing at the apex—warehousing there—the trains and the trucks came to the far extremity—there were no garish signs, it was well landscaped, but nevertheless it made this continuous cacophonous noise 24 hours a day. In irritation he walked back into the school building, his reverie broken.

His irritation would have continued had it not been for the fact that in the spring of 1954 the proprietors of the establishment wanted to extend the warehouse just 150 feet. They made application to the City Council, confident it would go racing through. After all, they were good neighbors in the community; they employed, with ideal working conditions, 600 people; they made a product essential to the economy of St. Louis; why, during the war they even made all the torpedoes that sank the entire Japanese fleet. Why, this petition would go right on through!

But when the Plant Manager went to the City Council, he received that shock that layman so often get, there was a great and vocal group of irate citizens, all in righteous indignation. Not only should the extension not be granted, the entire building should be torn down—it was a public nuisance.

A delay in action was granted and, the Plant Manager went back to his office. He thought, what have we done wrong? " I'd better go ask the people." So, he started down the street and he rang a doorbell. The door opened, he introduced himself, and BANG, the door slammed back in his face. He tried this four - five times, same results.

Back to his office he went, "What am I going to do? Ah! I've got an idea! If I can't get the people, maybe I could induce them to come to me. Maybe they would be curious as to what makes this interesting little noise. I'll invite them to be my guests. But I had better gimmick up my invitation a little bit; I had better offer them refreshments, beverages, entertainment, and door prizes—better do that." So he sent out letters to a thousand people—"Be my guest, June 14, 1954."

You will recall, on that June 14th, befitting Flag Day, the temperature in St. Louis was just a little higher than the flag—114°—but by 7 o'clock at night it had tapered off to a neat 102°. Of the thousand people invited, 1017 came. They were greeted at the door by the Plant Manager, they were greeted by the District Sales Manager, they walked down the line and they saw the miracle of this modern mechanical age. They saw the happy, chattering, clattering tin cans come racing off the lines at speeds up to 450 a minute. They saw signs that said "Do you realize that the people of the United States last year used 40¾ billion tin cans? Signs that said "Do you realize this saves the American housewife an average of 2 hours and 45 minutes a day for the more important things in life—like Scrabble, Canasta, TV watching?" Other signs that said, "Do you realize that the beer that's going to go into many of these cans next year could float 7 battleships, 42 cruisers, 147 destroyers, with enough left over for the Admiral's gig?" Signs that said "Do you realize over 500 food and 1,000 industrial products go into metal containers?" Signs that dramatically told of the importance of this one industry.

They were fed, they were beveraged, they were entertained, they were door-prized; by 11 o'clock everybody was happy. Then, on the next Tuesday when the Plant Manager went back to the City Council—Whooooh! Right on through. No opposition—only their leader who came up to him afterward and said, "Pardon me, sir, I don't believe you have a clear title to that property. I think the Navy still has an easement across it. You had better have your deed checked." The deed was checked, the title was cleared, the extension was built.

Maybe that sounds like the end of a good public relations story, except for the fact that one of the 1017 was Raymond Brisbane, Principal of Southwest High. As he came up to the door of the plant, he was greeted by the Plant Manager who said, "My name is Val Verhunce. I have the honor, sir, of being the father of the shortstop of Southwest High." He came to the District Sales Manager, who said, "My name is James Rayburn." The Principal said, "Let me see . . . Rayburn . . . that sounds familiar. The District Sales Manager replied, "It should. You've got two of my girls now, and I want to warn you. There are three more coming."

Mr. Brisbane continued on down the line, saw his friends and his neighbors working, and then, to his amazement, he saw seventeen members of his staff working the swing shift in order to earn enough money to support their families and still enjoy the luxury of teaching. He read the signs. He saw revealed the importance of this segment of our American economy.

After the meeting was over, he came up to the Plant Manager and said, "Mr. Verhunce, in the senior year we give our students a course we call "American Problems." We try to expose them to the cold, cruel facts of the economic world that lies ahead of them. I think the course is poorly named, I think we do a poor job of teaching it for we do it academically, out of the textbooks, an occasional visitation. Yet, right here across Kingshighway from our school, is a plant that represents all segments of our economy—agriculture and industry, labor and management, international and local operations—a perfect example of our

American economy in action. Could we use your plant as our laboratory?"

The Plant Manager checked with the New York Office, the Principal checked with the Superintendent of Schools, and starting in September of 1954, for 30 days, the senior class was exposed to the American economic system predicated upon this one industry.

The Plant Manager told of his five-fold responsibility—to his customers, to his employees, to the community, to management, to the shareholders. The District Sales Manager pointed out that his responsibility began when a sale was consumated, for then he had to be sure to keep a satisfied customer. There came the whole battery of those who represent the complex structure of a successful business; the purchasing agent, the master mechanic, the shipping foreman; people from the research laboratories, the agronomist, the technicians, the home economist; representatives of the labor unions, the personnel director; processors, packers, transporters, wholesalers, retailers—and on the last day came the Comptroller of the Company who pointed out, how, after all this, the corporation was still able to make a profit. Even after taxes. For 30 days the youngsters were exposed to our American way of life as demonstrated by one industry.

Then they were given three tests. First, a test on the history and significance of the processing industry; second, the 69 questions of the Public Opinion Survey of Princeton University on the American economic philosophy; and third, they were given their choice of the job they wished to occupy on Student's Day when they were going to take over the plant.

On the processing industry, of the 92 students, only 2 got 100%. Not good, except for the fact that we gave the test to the Plant and to the New York Head Office—nobody got 100%. On the 69 questions, it showed a 37% improvement on their comprehension of our American economic philosophy. On the 46 jobs to be occupied on Student's Day, we thought every youngster would want to be the big shot — Plant Manager, District Sales Manager. Only 2 wanted to be Plant Manager, and nobody wanted to be District Sales Manager. We had to draft one of the youngsters. Fourteen wanted to be the Shipping Foreman.

Then, on November 12 the youngsters took over, 46 in the 46 key jobs, the other 46 acting as guides for the Mayor, the representatives of the City Council, for the labor leaders, for the Board of Education, for visiting can makers, for the press and radio. They saw young America successfully operating a great industrial plant.

After the demonstration, there was a luncheon. It was a love-feast! The Plant Manager said, "I've never seen such cooperation as we got from the Principal of the school." The Principal said, "I've never seen such cooperation as we got from the corporation." The Superintendent of Schools said,, "We're going to do this in every school we have" — the Vice President of the corporation said, "We're going to do this in every community we have a plant." — And then the Mayor summed it all up by saying, (as Mayors always seem to say,) "You have proved yourselves to be Good Neighbors."

All this was happily conclusive in itself, except for the fact that the M.C. called extemporaneously on one of the students, Louis Pritzby. Louis shuffled up to the microphone, St. Louis' answer to the zoot-suiter. He was wearing a turtle-neck sweater, with red and white horizontal stripes, he wore jodhpurs and paratrooper boots with the laces tied around his legs; his hair was combed like the south end of a north-bound duck. As he went, all the girls gave him the whistle, all the guys screemed, "Loeee!"

He stood in front of the microphone embarrassed for a minute, and then he said, "My old man didn't want me to take this course. He said, "You're nothing but a bunch of big shots that get rich out of the blood of little guys'." "But," he said, "I hope you'll forgive me, Mr. Verhunce, Mr. Rayburn, I don't think any of you are big shots. I think that you're just average men trying to do a better than average job, and the higher the job gets, the tougher it gets." He said, "I don't know why my old man looks down on big shots—used to be one himself, used to play tackle for the Old Chicago Bears. Wanted me to go out for football, all 98 pounds of me. I tried, broke my arm trying! Then Mr. Brisbane said, 'Lou, why don't you try for yell leader?' I ran for yell leader, I was elected yell leader, and I'm the best yell leader Southwest ever had." And all the youngsters cheered to tell him that he was. Then, he said, "And when I graduate from High School, I know what I want to be. I want to be a Shipping Clerk. And then maybe one day I can get to be Shipping Foreman, like Dick Curran, the man whose job I held today." Then he said, "Well, I guess that's about all."

He shuffled back to his seat and that *was* all except for the fact there were no derisive cat calls, no whistling; 91 youngsters, looking at Louis, just a little starry-eyed, realizing as he did that in America you can set your goal in life and have the hopes of achieving that goal. There were 92 representatives of the press, and politicians, and can makers, looking admiringly, realizing that Louis had gotten the message of the wonderment of America.

After the luncheon was over, Raymond Brisbane took Mike Cortilet, the Vice President of the corporation, over to the window of the cafeteria. Mr. Bris-

bane put his arms around Mike Cortilet's shoulder as they looked across Kingshighway, up the knoll to Southwest High, and Raymond Brisbane read the words, "Ye shall know the Truth, and the Truth shall make you free."

Unfortunately, since that day both Mike Cortilet and Raymond Brisbane have joined Woodrow Wilson in the land where all Truth is known, but I'm sure they would join with him in his admonishment of the importance of "The translation and transmission of information and inspiration to our neighbors." Particularly, our neighbors of tomorrow who shall one day inherit our world.

Our goals the highest, we share our knowledge, we remember the worth of the individual – – – !

On each coin that jingles in our pocket is the inscription "E Pluribus Unum" – – – "Out of Many One." But, in this heterogeneous world of today with all of its complexities we say, "But what can one man do?"

Knowing that just across town from us is the headquarters of the United Nations, my thoughts race back to 1945 –

In 1945, I had the greatest experience of my life– I had the privilege of attending all of the sessions of the founding convention of the United Nations.

I saw, on April 24, 1945, 1500 of the world's greatest minds come together seeking the common denominator to the world's problems and they didn't even have a common God to whom to pray. Yet, after being together for two months they found they had common problems, common goals, common fears, and on June 25, they were able to adopt the great United Nations Charter bringing the entire world closer to peace than at any time in history.

I attended all those sessions for, representing the United States Junior Chamber of Commerce, I had a high-falutin title. I was "Associate Consultant to the United States Delegation to the United Nations Conference on International Organization." I saw many things because of that title and because I had shown a little foresight–and if by chance the next session of the United Nations should come to your town and you wish to get in on the inside workings all you have to do is this–about three years prior to the conference marry a beautiful blond then the week before the conference, have her go to work for the State Department. It's that easy. I know.

I could tell you about each session but let me tell you about the last evening, June 25, 1945, the night of the ratification of the Charter. It was part of the newspapers and newsreels then. It's part of the world's history book now.

The scene, the San Francisco Opera House, the pale blue cyclorama around the back of the stage, four tall gold columns, the 50 United Nations flags standing at parade rest before the columns, the pale blue velour across the stage, down into the orchestra pit.

On the main floor the 1,500 delegates, jammed up to the rafters every visitor that could get into the place. Movie cameras were grinding away for history, photographers clamoring all over, nobody's portrait was sacred.

Presiding over the meeting was the epitome of Britannia's dignity, the Earl of Halifax. He stands six feet five inches tall, his left arm is off above the wrist giving him a rather awkward stance, his hair is combed from where it is–over to where it ain't! For the life of me, he looked like Frankenstein. But as he stood there so tall and so haughty you could kind of hear "Pomp and Circumstances" playing in the background.

He was presiding and the entire evening was electric. Particularly when Carlos Romulo jumped to the podium to say, "Speaking for the little nations, we do not believe this is a perfect Charter but we believe the big nations will sense their responsibility to us."

Then Harold Stassen said, "Speaking for the big nations, we do not think this is a perfect Charter but we sense our stewardship of the little nations."

Then, speaking for Russia, Andrei Gromyko said, "We do not think this is a perfect Charter – – period."

The discussion went on until 10:48 p.m. then Halifax said, "The time has come for voting on the Charter but before we do so, I want to pay tribute to this great United States for setting up this conference, making this entire thing possible. I want to pay tribute to this great city for the hospitality they've shown so I'm going to ask the Secretary of State to come forward!" And Edward R. Stettinius, Jr. came forward, all that wonderful white hair, and eyebrows, and teeth.

Halifax handed Stettinius a scroll about 3 feet long with a wide red ribbon on it. Uncle Ed leaned over to the microphone said a few well chosen words and went back and sat down.

Then Halifax said, "The time has come to vote. So important is this moment, I'm not going to just ask you to vote 'aye' as we've done in the past. I'm going to ask that when I rap my gavel all of those voting affirmatively will stand."

With a sense of the dramatic he slowly raised his gavel, waiting for the tellers to come on the stage, the photographers to get set, for the movie camera to start whirling, for the visitors to move forward to the edge of their seats, to the tip of their toes.

Then, he said, "All those voting affirmatively will stand." And he rapped his gavel and the 1500 delegates jumped to their feet proud to be endorsing the Charter and all the visitors jumped to their feet and

applauded – 5, 10, 15 minutes!

I saw the whole thing from the back of the main floor. I came in a little late, decided to lean against the south wall at the end of the aisle. But just as I hit the wall the little Red Cross usherette turned around, smiled, and said, "Pardon me, you can't stand here. Fire ordinance. Would you kindly move over?" At my height you can take it. I moved over behind the last row and watched the proceedings from there; right up to the time Halifax was about to call on Stettinius.

Then I saw a little man come in. He too, leaned against the wall. I noticed his overcoat was turned up at the collar, his hair was a bit askew, a mole stood out high on his right cheek, his eyes behind thick glasses were very tired, he clutched in his right hand a manila folder and a gray felt hat, and he appeared a man completely exhausted.

He got a little more rest against the wall than I did because just as he hit the wall, Halifax called on Stettinius and when Stettinius marched, it was just time out for the ladies. The little Red Cross usherette just stood there, gaga! Stettinius walked up, got the scroll, came back, sat down. The usherette was right back on the job, started talking to the little man, he started nodding his head wearily, I knew what was going to happen. He came over and stood in front of me.

We stood there together while Halifax called for the vote, rapped his gavel, the delegates voted, the visitors cheered and the little man—walked out the back door.

He walked down the stairs of the Opera House, shuffled along the street, walked up four flights of stairs into a little room, where there was just a table, a few chairs, a mattress on the floor, an old army blanket. He threw his hat, his coat and his manila folder on the table, flopped down on the mattress to try to get a little sleep.

That sounds like someone ending up in a flop house, except for this –

He walked down the stairs of the Opera House, shuffled along the street to the adjoining Veteran's Building, walked up the four flights of stairs into the library of the Veteran's Building, threw his hat, his coat and his manila folder on the table around which had sat the five great powers while they argued out all the final details of the Charter. He went over to get a couple of hours sleep before he was to receive the beautiful blue bound document itself because on that manila folder it read, "Final Charter, Production Procedure."

And the man was Dr. C. Easton Rothwell, the Executive Secretary to the Conference. The man who started before Dumbarton Oaks to set up the plans for the Conference, the man who had seen it through all of its legal ramifications, who had seen to the final production of the Charter itself.

Yet, when all the acclaim was up in front, he was the little guy standing in the back of the hall.

We plan, persuade, preserve; we translate and transmit information and inspiration to our neighbor, and whereas we recognize we can't do everything, nevertheless that which we can do we should do, and that which we should do we determine we will do.

Then, we know we can leave it to the dictators and demagogues to despair but you who work with nature as she unfolds her mysteries and all who work with men and women as they demonstrate their abilities know that it can be truly said –

"PRAISE GOD FROM WHOM ALL BLESSINGS FLOW."

THE GEOGRAPHY OF MILK [1]

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There are many factors governing whether or not milk will be part of a people's diet. Most important among these factors is tradition, then comes availability. The bodily needs come last, and in most parts of the world are not even considered. In a review of the most important populated areas of the world, these statements are discussed. One can gauge the degree of advancement of the various countries by the ability of the local culture to produce wholesome milk.

I believe that a good criterion of a country's advance in technology is to assess its ability to produce and distribute wholesome milk. A large number of factors govern what people eat throughout the world. *Availibility*, which in turn depends greatly upon land forms and climate, and *tastes*, which have been developed through the centuries in accordance with cultural beliefs and economic conditions, are certainly foremost in determining the daily menus of mankind.

The physical needs, the bodily requirements, however, play a much smaller role than one would think. Whereas they should be *the* governing factors, these physical needs seem to adapt themslves to culturally developed tastes and beliefs, and to local availability. Thus, we find that people accept foods that do them little good and refuse to consider others that would be of great value in their diets, which is thus a part of their culture.

Culture in turn is the sum total of the techniques and beliefs which help a group of people to adapt to their environment and which reveal the degree of adaptation. It is quite different from civilization which to my mind is the ability of man to use his primitive instincts toward a higher ideal, as typically represented by the ability to live in a city.

Let us have a bird's eye view of what milk means to men, throughout the world. It is a strange thing that although no man alive has ever grown to manhood without depending upon milk in the first months of his life, hundreds of millions of adult human beings frown upon its use and disregard the help it could bring them. It is still more puzzling if we consider that these people are, more often than not, underfed or even starved. Many people of the world have prejudices against milk. Some feel it gives worms to children, others, like the Singhalese, believe that it causes disease, which it very well may do, if produced without the proper techniques and protection.

Contempt for milk is an almost essential characteristic of the Chinese civilization, which, as you know, strongly penetrates the surrounding countries of Southeast Asia. It is not that the Chinese have no cattle, they do, but they use them chiefly for labor in the fields. The Chinese have not been permeated by their milk drinking neighbors, the Mongols, Tibetans, and Hindus. In China all the causes which result everywhere in scarcity and poor quality of milk are further implemented by cultural taboos. There is a saying, "Whomsoever drinks the milk of a cow creates a bond of familial parentage with the cow, which is degrading." This is a surprising attitude among people who have developed considerable talent in the culinary arts and know how to prepare tasty dishes of dog meat, snake filets, rat roasts and other foods which we in our own culture have a feeling of disgust.

If we turn to Africa, we find a varied picture. In Tanganyika women are forbidden to drink it; in Uganda, men. This is surprising in view of the fact that in neighboring Kenya the Masai people willingly feed on milk from their cows and on blood from their bulls. In most places there is no milk so that the taste for it could not develop, and it is not part of the culture.

There is no doubt that the taste for milk could be developed in places where it is frowned upon now. In Asia, for instance, I have in my own lifetime seen the demand for small, low-priced cans of European condensed milk grow to considerable proportions. I believe that several factors have made it attractive. Foremost among them is the fact that it was presented in cans, thus overcoming the prejudice of getting it from the cow's teats (like an animal). Second, is probably the fact that smart exporters from Europe merchandised the milk in small quantities for a very low price, and a third reason might well have been fashion. The powerful conquering Europeans who often, of course, drank whiskey, seemed also to hold milk in great appreciation and made a point of giving it to their children. Those who lived near or worked in European households sometimes gave the condensed milk to their own offspring as a spread on

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pancakes or on European bread. A spread of this kind could be a tremendous help against human starvation.

Starvation in many places takes the form of "Kwashiorkor" an African word meaning "little red boy". In vast areas, the weaning of the children occurs around the age of two, because this usually coincides with the time when a new baby is born in the family and requires most of its mother's milk. From one day to the next the child is fed a diet of carbohydrates, chiefly manioc, which is poor in protein and, of course, completely devoid of animal protein. As a result, a nutritional disease due to lack of animal protein, called Kwashiorkor, is widespread. The child loses its pep and energy, falls into apathy and and slumber, loses the pigments of its skin and of its hair, which becomes silky and brittle, and takes a reddish hue which has given the disease its name.

If nothing is done the child dies. If not enough is done the child may survive for a number of years but its chances of succumbing to fatty infiltration of the liver when he reaches adolescence, or perhaps, as some believe, of primary cancer of the liver when he gets to his twenties or thirties, are considerable. This disease, although designated by different local names, is found in India, China, Indonesia, South America, Central America, Mexico and the Caribbean Islands.

To treat this disease is very simple: feed these children skimmed milk. If this is done in sufficient amounts and for a long enough period of time the disease is cured. Thus, in the most important starvation areas of the world, Asia, Africa, and South America, milk can open the way to health and well-being. Other than these countries and societies where milk is held in contempt, there are places where it is liked, but where local factors make it so scarce that the taste cannot be developed and the benefits from its consumption cannot be enjoyed.

India presents the most interesting problem of them all. Its people are starved, they like milk, they have the greatest herd of cattle in the world; yet milk is not available. The reasons for this situation can be better understood if we study culture. There the cow is a sacred animal which cannot be killed. Thus a large proportion of the herd is made up of old cows that have long ago outlived their ability to reproduce and, hence, to give milk. Yet the food they eke out from the meager pastures deprives productive cows of much needed nutrients.

The severe competition between animal crops and human crops makes itself felt to the point where the cattle are as starved as the people There is almost no chemical fertilizer to give production a boost, because such is expensive and there is little foreign currency with which to buy it. Local industry cannot as yet fill the need. The animal fertilizer which is used cannot return to the land much more than it received from it and, therefore, is of little value. This problem of competition between food and animal crops is not new, nor is it peculiar to India. Until very recently it existed in Europe, where cattle were considered a necessary evil. It only has been in the second half of the last century that Europeans and Americans have advanced their agricultural technology to the point where these two do not compete.

In India the problem is to squeeze as much milk as possible from the poorest fed, illest bred, animals in the world. This daily fight for milk is pathetic. The calf, of course, has to be taken away from the cow, lest he drink everything there is. As he cannot be killed, he is left to fend for himself, sometimes in the jungle, sometimes in the sun. Naturally the mother cow is not cooperative, and won't yield her milk unless she sees her young. Hence, this typical Indian street scene which I still see in my memory: the milkman going from door to door with his one-legged stool and the likeness of a calf, consisting of a motheaten calf's head, stuffed with straw mounted on a piece of wood. This he would plant in the ground in front of the cow for her to lick as he drained her of a few ounces of watery milk, which he sold to his customers.

In Indonesia, the people like milk but they, like the Indians, and for similar reasons, have not enough to go around. They import milk and cream from abroad in spite of their lack of foreign currencies. Approximately $5,000,000 worth were imported in 1956.

In other countries herds of cattle are not valued for their milk, although they are valued for their meat. This applies chiefly to the herdsmen of tropical Africa, especially in the Chad region, in Madagascar, and among the Peuls of French West Africa. There, milk has become a valuable product only since these populations have had contact with Europeans. However, if they have learned that they could sell this milk, or on occasions even drink it, in most cases they have not yet learned how to produce clean palatable milk.

Milking a cow is quite a job in Ruanda-Urundi. Only men can milk cows, and when I say men, I mean several men. One holds the calf, another one pampers the cow, the third chases the flies away and the fourth tries to squeeze a few drops of milk from the beast's empty udders. In the Chad region the milk is thought to keep longer if the container is previously washed with cow's urine and then smoked.

This procedure, of course, may destroy quite a number of germs, but at the price of a taste which gives fermented beverages an unfair advantage.

In the West Indies cattle are currency. People are interested neither in milk nor in meat. They do not like milk; for some reason which I cannot understand, they prefer rum. They cannot afford meat because who would think of frying a defense bond or a golden jewel or any valuable element of capital for lunch or breakfast?

I will always remember my days in the West Indies. There was some milk sold in the markets of an obscure little island which I will not name, but you had to boil it the minute it got into the kitchen and very often it curdled before it got to a boil. Then, one day I brought some to my laboratory and was interested to find that it contained more than 4 milligrams of fecal matter per liter. Since there was about twice as much of the same in the local water system, it was not difficult to trace this polution to some commercial enterprise intended to make much out of little. In the end, I decided to pay the very large price that they fetched, and buy myself a cow. In order to do this I consulted the Chief Veterinary Officer of the Island. He was dubious as to the success of my enterprise and told me point blank that if I wanted anything resembling a cow with four teats and a full udder I had better forget it. Most of the cows were sick and some had visible lesions on their milking parts. Out of a herd of 60,000 head, it might be possible, with luck, to find a few animals with three teats, but most of them had two, and some only one, the others being either atrophied or covered with dermatitis. Finally, I succeeded in getting a tip on an animal which was reputed to yield up to two quarts of milk a day and to be in fairly healthy condition. I do not know how this quantative data had been ascertained because when the animal came to my compound, it was obvious that it had never been milked and that it never would be. A full cuadrilla and a matador would have been needed to keep it quiet and even then I doubt if a few ounces of milk could have been squeezed from the flat bag of flesh, which for some reason best known to herself, this cow carried between her hind legs.

If we turn now to the nomadic people who live in the deserts of Asia and Africa, we find people with a genuine fondness for milk, probably enhanced by the fact that for many of them it means relief from the danger of dying from thirst. The Tuareg, the Beduins, and in general the various tribes living in African deserts can go as far as their camel can go, and feed on its milk. I mention this, because, although it is not cow's milk, the taste for the beverage is highly developed. If economic conditions were to improve it would not be difficult to make them appreciate good nutritious milk. As it stands now, milk has not become a staple item of the diet in these areas because the animals produce so little, due to the aridity of the environment. In the deserts of Asia, Mongol and Tibetans use milk in various ways; fresh or curdled, in cheese or butter; in Tibet the latter they put in tea. They also have practical uses for butter, putting it on their hair, or on their faces to protect their skin from the freezing wind, or in lamps. In certain instances, it is even used as a modeling material from which they sculpture religious images. In certain cases, the Chinese Turkestan people have preserved the taste for milk and milk products in spite of the fact that there are no pastures and that complicated trade exchanges are required to bring the milk to the consumers.

In the north, we find again that milk is foremost in the food planning of many people living on the fringes of the northern ocean. There milk comes from the reindeer and like their brothers of the subtropical climates, these people go as far as their reindeer go, which means that they are found where the reindeer find food. There too, milking is a problem. It is done by a man and a women combining their talents. The man lassoes the animal around the antlers and after a fight usually ties it down. Then, the women milks it quickly, collecting the milk in a wooden container. Each milking yields a cupful of thick, creamy milk.

So far I have mentioned many places where milk was not appreciated, and regions where, although appreciated, it was not produced in sufficient quantities to meet the demand. But what about our own country and the countries from whence our civilization came, namely, Western Europe? No milk was drunk in the pre-Columbian Western Hemisphere, since no cattle were reared. After European conquerors introduced domestic bovines and ovines, some isolated communities acquired the taste for milk. This was a slow process, however. In 1874, as noted by Woikoef, wealthy Mexican ranch owners purchased condensed milk from the United States in large quantities to meet their own needs, which shows that even at this recent date, the rather primitive cattle industry which prevailed below the border was not equipped for the production of milk.

I am sure that most of us would be surprised to read that up to the middle of the last century people who wanted milk in certain regions of France, now the second largest producer of butter in Europe, went shopping at the apothecary's shop, since milk was a beverage fit only for infants or invalids. In many

parts of the rural areas there was the same sort of disgust for milk which we have described in China. However, a combination of factors led to the application of the dairy technology of western civilization. It is hard to tell how these factors combined in time or even which was the most powerful. Like everything else in life and history, it just happened because the time was ripe.

Science demonstrated the nutritional value of milk. It discovered that, speaking in terms of pastures of average quality, ten units of feed produced six thousand calories in nine quarts of milk, but only a thousand calories in one kilo and a half of live beef; and that yield in useful animal proteins is about twice as great in milk as in beef for the same quantity.

Then it was found that a market existed in the rapidly growing industrial towns which arose out of the industrial revolution of the last century. Then the science of increasing the yield of an acre of land by rotating crops and applying well prepared fertilizers established itself and replaced custom and tradition. Genetics and medicine taught the western man how to develop milk-yielding cows from breeds of cows and bulls carefully selected for that purpose. At the same time the science of bacteriology and immunology taught how to protect these animals against diseases of all kinds.

In the line of production and distribution, the capture of energy, the new fuels, the better understanding of the use of steel and of glass, even of paper, the science of refrigeration, the huge development of fast, cheap and frequent means of transportation—all this resulted in a considerable increase in the output of the animals, in a development of the taste, and in the marketing of the product which brought the situation in Europe and America to the point where it is today. If we add to this, excellent recipes of all sorts which serve to introduce milk in appetizing dishes and formulas, and if we understand that this is the result of a combination of effort of scientists in every discipline and of historical factors, such as the ones I have just tried to describe, I am sure no one will dispute my initial premise that the degree of advancement of a given country on the road to civilization can best be measured by its ability to produce large quantities of wholesome milk and milk products.

Now that we have had a bird's eye view of what I can perhaps call the "geography of milk", I would like to integrate this in quantitative terms, if possible, into the general picture of human diets. I hope this will give a better idea of what the needs for milk are in the world, and how and in what quantities they could be met.

Beginning with our own country, a vast cattle land covers three-quarters of the United States' area —from the eastern border of California to the eastern border of the Atlantic states and from Canada to Texas. Cattle raising is also undertaken on a very large scale in South America, especially in Argentina, Uruguay, and Paraguay. Herds of cattle are also found in Brazil, in the fertile Magdalena Valley of Colombia, in Venezuela, in Peru, and in Bolivia. In Europe the great cattle regions are Ireland, the south of England, a certain part of France, Switzerland, Germany, Denmark, Hungary, and Rumania. Herds are also found in the Balkans, Italy, Portugal, and Spain.

We lack details on the present situation of the cattle industry in Asiatic Russia but there seems to be no doubt that vast herds of cattle extend deep into Asia. In Africa the distribution of cattle is patchy. There is some cattle industry in north Africa and it is found in tropical Africa in areas where the tsetse fly is not found. In Asia, India and Pakistan own between them the greatest herd of cattle although perhaps the least productive. Some are found in China, and there are large cattle regions in Australia and New Zealand.

While the absolute number of cattle in a region may be important, of more significance is the ratio of cattle to the population, as contrasted with the per capita milk consumption. The ratio of cattle to people ranges from 4.5 animals per capita in South West Africa to 0.005 in Hong Kong, where 5,000 people must share one animal. The United States ranks 18th in this respect, with not quite one animal per person. Among the top-ranking countries we find Uruguay, New Zealand, and Argentina; also South West Africa and Bechuanaland. If we compare these findings with those based on the availibility of milk, we see that, the United States ranks fifth among the milk drinking nations of the world, with Iceland heading the list. Tanganyika, on the other hand, has a rather high ratio of cattle to people—more than 1 animal per person; yet, there are only a few ounces of milk available per day for those who care to drink it. This is not surprising in view of the low production per cow.

Let us now consider present human diets throughout the world and the part which milk could play in changing these starvation diets into adequate diets. In the Western Hemisphere; only five countries and a small part of a sixth can boast of having adequate diets. We must not forget that starvation can occur in various ways. We can eat enough to supply us with energy, but not the kind of foods that would protect us against gradual decay of our tissues. We

can also be starved on both counts—energetic and protective. Milk is the best example we can give of a food which contains energy value and protective elements in concentrated amounts.

Canada, the United States, the Magdalena Valley in Colombia, Uruguay, and the greater part of Argentina are adequately fed on both kinds of food. But in the rest of the Western Hemisphere either people starve outright, or they have a little reprieve from starvation due to the fact that they manage to fill themselves with enough combustion material to keep going.

In Europe the total or partial starvation areas occur in Spain, Portugal, Eastern Germany, and the Balkan regions except Greece. We have no reliable data regarding Russia, but there is good reason to believe that Russia includes vast areas of famine. In Africa total or partial starvation is the rule throughout. However, due to the extensive consumption of manioc, people in vast areas do not realize their hunger. In Asia, except for the fertile valleys of Kashmir, and Nepal, and excluding the butter-eating people of Tibet and the fish-eating people of Cambodia and Siam, starvation is total and widespread. In Oceania, we find that Australia and New Zealand are more than adequately fed, but most of the other islands are starving. This situation breeds disease and political unrest or political apathy.

There is no single solution to the problem of teaching people how to produce their own milk. The situation varies considerable from one place to another. In areas of Chinese influence the problem of an adequate milk supply would demand a cultural solution before an agricultural and industrial one. In India, it would require an agricultural, social, industrial, and economic solution. In Africa great advances in veterinary and medical science is needed before much can be done. In the western world great improvement could be made in our distribution system.

It is my hope that there will come a day when everyone will have not only one chicken in the pot every Sunday, as the good King Henry IV of France modestly dreamed for his people, not only two cars in every garage, as one great American dreamed for the people of this country, but also two quarts of milk for every human being every day, everywhere.

MILK QUALITY PROBLEMS ASSOCIATED WITH PRESENT-DAY MARKETING[1]

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Milk distribution systems in use at the present time have been criticized for impairing the quality of milk. The basis for such criticism is the time interval between pasteurization and consumption. Several years ago, the usual time between processing and consumption of milk was 48 hours, or less. At present, the common interval is 72 to 96 hours and frequently it is more. Considerable data (*4, 5*) are available on the bacterial content and growth of bacteria in pasteurized milk, but data concerning the effect of present-day marketing systems on the bacteriological and flavor qualities are not so numerous. The study reported here was conducted to obtain information on the effect of the distribution system on the bacterial population and flavor of pasteurized milk. The market selected for study was served by three local and four other distributors.

METHODS AND PROCEDURES

The milk used in this study was obtained from seven wholesale distributors supplying an urban area in Indiana. Three of the distributors processed within the urban area and the other four within a 150-mile radius of this area. The former will be referred to as local and the latter as outer-market distributors. Samples were collected from each distributor at the time of bottling, when delivered to the retailer, and 24 hours after delivery to the retailer. The samples were collected monthly over a one-year period. Two samples were taken at the filler and also from the retail store 24 hours after delivery. One sample from the filler was analyzed immediately, the other after storage for 5 days at 45°F. One sample from the retail store was analyzed immediately, the other after storage for 3 days at 45°F. Each sample was analyzed for bacterial content (total, coliform, and psychrophilic bacteria) according to Standard Methods (*1*), and the flavor and temperature noted. Plates for total counts were incubated at 32°C.

[1] Published with the approval of the Director of the Purdue Agricultural Experiment Station as Journal Series Paper No. 1340.

TABLE 1 — BACTERIAL ANALYSES OF MILK COLLECTED FROM SEVEN PROCESSORS UNDER TYPICAL DISTRIBUTION CONDITIONS AND FOLLOWING STORAGE UNDER CONTROLLED CONDITIONS

Source Sample	Type of distribution*	Storage days at 45°F.	Per cent of samples with plate counts (per ml) in range of:				Per cent of samples with coliform counts (per ml) in range of:				Per cent of samples with psychrophilic counts (per ml) in range of:				
			< 10,000	10,000 to 30,000	30,000 to 100,000	> 100,000	< 10	10 to 100	100 to 1000	> 1000	< 1	1 to 100	100 to 10,000	10,000 to 100,000	> 100,000
Off filler	L	0	70	30	0	0	88	12	0	0	85	15	0	0	0
	OM	0	59	37	2	2	96	4	0	0	80	18	2	0	0
	L	5	18	12	27	43	46	12	21	21	....	18	21	18	42
	OM	5	17	20	15	48	54	20	4	22	....	22	17	20	41
Following delivery to retailer		0	64	27	6	3	94	6	0	0	70	30	0	0	0
	OM	0	64	27	9	0	91	9	0	0	80	16	4	0	0
24 hrs. after delivery to retailer	L	0	72	19	9	0	97	0	3	0	63	34	3	0	0
	OM	0	64	25	7	4	91	5	4	0	66	23	11	0	0
	L	3	23	10	20	47	47	13	27	13	....	7	46	10	37
	OM	3	22	20	15	43	60	15	7	18	....	20	30	12	38

*L = Local, OM = Outer Market

After the above mentioned tests were completed, line-run tests were made in the plants of the seven processors each month for one year. Duplicate samples were collected at the pasteurizer, cooler, the surge tank supplying the filler, and bottler. One set of samples was analyzed immediately and the other after storage for 5 days at 45°F.

RESULTS

The distribution of total, coliform and psychrophilic counts on milk obtained at the filler (bottled milk), at the time of delivery to the retailer, and 24 hours after delivery to the retailer is given in Table 1. At the time of bottling, milk processed locally had somewhat lower total and psychrophilic counts but higher coliform counts than milk processed outside the market. However, after storage for 5 days, there was little difference between samples processed within and outside the market. The longer transportation distance of outer-market processors had little effect on bacterial counts as shown by analyses made at the time of delivery to the retailer and 24 hours after such delivery. Bacterial growth in samples held in retail channels for 24 hours was not excessive but further holding at 45°F. resulted in marked increases in total, coliform, and psychrophilic bacteria.

Seventy-three per cent of the samples of freshly bottled milk which contained psychrophiles in 1 ml. had plate counts >100,000 per ml. after storage for 5 days at 45°F.; 39% of the samples in which no psychrophiles were detected in 1 ml. had counts >100,000 per ml. after storage for 5 days at 45°F.

Standard plate counts >100,000 per ml. after storage for 5 days at 45°F. were noted in 53% of the samples having >1 coliform per ml., when fresh, in comparison to 43% of the samples with <1 coliform per ml., when fresh. Forty-three per cent of the milk samples with initial counts >10,000 per ml. and 47% of the samples with initial counts <10,000 per ml. had plate counts >100,000 per ml. after storage for 5 days at 45°F.

The flavor scores of milk obtained from local and outer-market processors when fresh, and after holding for 3, 5, and 7 days at 45°F. are given in Table 2. Initially, more of the milk from outer-market processors had flavor scores greater than 36.5 in comparison to milk processed locally. After storage at 45°F. for 3 and 5 days, the flavor of milk from local processors was superior but after 7 days the flavor scores of milk from outer-market processors were greater. There was a gradual decrease in flavor score with storage at 45°F.

After storage for 7 days at 45°F., flavor scores in the range of 35 to 36.5 were given to 33% of the samples having psychrophiles in 1 ml. when fresh, and to 42% of the samples having no psychrophiles in 1 ml. when fresh.

Table 3 shows the temperature range of milk obtained at the filler, at the time of delivery to the retailer, and after holding 24 hours in the retail store. Milk bottled by local processors was warmer at the

TABLE 2 — FLAVOR SCORES OF MILK FROM SEVEN PROCESSORS AFTER VARIOUS PERIODS OF STORAGE AT 45°F.

Range of flavor scores	Local Processor: Per cent of scores in range indicated after storage for:				Outer Market Processor: Per cent of scores in range indicated after storage for:			
	0 days	3 days	5 days	7 days	0 days	3 days	5 days	7 days
>36.5	30	12	7	0	35	7	4	0
35.0 – 36.5	64	82	83	40	56	80	74	63
33.0 – 34.5	6	6	10	18	9	13	15	19
30.0 – 32.5	0	0	0	9	0	0	7	7
<30.0	0	0	0	33	0	0	0	11

TABLE 3 — TEMPERATURE OF MILK AT SELECTED POINTS DURING DISTRIBUTION

Temperature range of samples (°F.)	Local processor - per cent of samples in range indicated			Outer market processor per cent of samples in range indicated		
	Source of sample[a]			Source of sample[a]		
	A	B	C	A	B	C
<41	0	15	31	23	9	28
41 - 45	58	52	35	58	51	44
46 - 50	33	21	31	16	27	23
>50	9	12	3	3	13	5

[a]A = At plant — off bottler; B = At time of delivery to grocery; C = 24 hours after delivery to grocery.

filler but colder when delivered to a retail store than milk processed outside the market. Throughout the distribution system, temperatures of 41° to 45°F. were the most common.

After distribution to the retailer, and subsequent storage for 3 days at 45°F., standard plate counts >100,000 per ml. were noted with 54% of the samples which exceeded a temperature of 44°F. during distribution, and with 31% which did not exceed this temperature during distribution.

In order to determine the extent of contamination occurring within plants, total, coliform, and psychrophilic counts were made on samples of milk obtained at the pasteurizer, cooler, filler supply tank, and bottler. The samples were analyzed immediately and after storage for 5 days at 40° and 45°F. Analyses were made once-a-month for 12 months in seven plants. Data obtained on these samples are given in Table 4.

Samples taken at the pasturizer contained <1 coliform organism per milliliter, even after storage for 5 days; some psychrophiles were present and they increased during storage. As milk passed from the pasteurizer to the cooler, slight contamination with all types of bacteria occurred, and this was also true of milk sampled at the bottler supply tank and bottler. On fresh samples, the extent of contamination was more evident from coliform counts than psychrophilic counts. With bottled milk, storage at 40° or 45°F. had less effect on the coliform count than on the psychrophilic count. Coliform counts were about the same at both temperatures but psychrophilic counts were greater at the higher temperature.

A comparison was also made of flavor scores on milk held at both 40° and 45°F. The study involved monthly samples from seven plants over a period of one year. As would be expected, flavor deterioration was greater in samples held at the higher temperature

TABLE 4 — BACTERIAL ANALYSES OF "LINE-RUN" SAMPLES. ANALYSES CONDUCTED WHEN SAMPLED AND AFTER STORAGE FOR 5 DAYS AT 40° F. AND 45° F.

Source of samples	Storage days	Source of sample	Per cent of samples with plate counts (per ml.) in range of:			Per cent of samples with coliform counts (per ml.) in range of:			Per cent of samples with psychrophilic counts (per ml.) in range of:			
			<5,000	5,000 to 10,000	>10,000	<1	1-10	>10	<1	1-100	101 to 10,000	>10,000
Immediately after pasteurizing	0	L	67	11	22	100	0	0	100	0	0	0
	0	OM	53	24	23	100	0	0	94	7	0	0
	5 (40°F)	L	83	11	6	100	0	0	0	100	0	0
	5 (40°F)	OM	47	24	29	100	0	0	0	94	0	6
	5 (45°F)	L	72	17	11	100	0	0	0	100	0	0
	5 (45°F)	OM	41	18	41	100	0	0	0	81	13	6
After cooling	0	L	56	17	27	100	0	0	100	0	0	0
	0	OM	35	35	30	100	0	0	100	0	0	0
	5 (40°F)	L	83	6	11	94	6	0	0	89	11	0
	5 (40°F)	OM	29	42	29	88	12	0	0	82	12	6
	5 (45°F)	L	56	22	22	100	0	0	0	100	0	0
	5 (45°F)	OM	47	24	29	100	0	0	0	63	31	6
From bottler supply tank	0	L	50	19	31	90	10	0	100	0	0	0
	0	OM	41	24	35	94	6	0	94	0	6	0
	5 (40°F)	L	50	25	25	89	11	0	0	59	23	18
	5 (40°F)	OM	18	29	53	94	6	0	0	50	33	16
	5 (45°F)	L	31	19	50	83	17	0	0	47	24	29
	5 (45°F)	OM	18	23	59	88	6	6	0	44	44	12
Bottled milk	0	L	55	17	28	72	22	6	100	0	0	0
	0	OM	50	21	29	79	13	8	100	0	0	0
	5 (40°F)	L	28	33	39	77	17	6	0	33	45	22
	5 (40°F)	OM	21	21	58	75	4	21	0	35	43	22
	5 (45°F)	L	17	33	50	77	17	6	0	33	33	34
	5 (45°F)	OM	8	13	79	71	8	21	0	31	39	30

[a]L — local; OM — outer-market

TABLE 5 — DISTRIBUTION OF FLAVOR SCORES OF MILK WHEN FRESH AND AFTER STORAGE FOR 5 DAYS AT 40°F AND 45°F.

Range of flavor scores	Local processor			Outer market processor		
	Per cent of scores in the range indicated after storage for:			Per cent of scores in the range indicated after storage for:		
	0 days	5 days (40°F)	5 days (45°F)	0 days	5 days (40°F)	5 days (45°F)
>36.5	7	0	0	11	0	0
35.0 - 36.5	93	100	93	67	22	28
33.0 - 34.5	0	0	7	22	78	72

but the difference between the two temperatures was not great. No scores of 37, or more, were given to samples held for 5 days whereas 9% of the fresh samples were in this range. Pronounced flavor deterioration to the point that the milk was not saleable did not occur.

DISCUSSION

With our present system of milk distribution it is not uncommon for a city to be served by local processors as well as processors located quite some distance from a city. The study reported here was conducted primarily to determine whether there was any appreciable difference in the bacteriological quality of milk supplied by local and outer-market distributors. During transportation it is possible for milk to increase in temperature and the agitation during transit might break up clumps of organisms and thus give an increase in count by the plate method.

The results indicate that the extent of post-pasteuization contamination had greater influence on the keeping quality of milk, as determined by bacterial counts and flavor, than the conditions encountered in the distribution system. Excessively high bacterial counts on stored milk, such as those reported by Mott and Mozer (3), were not encountered in regular distribution channels.

The temperature of milk at different points in the distribution system was determined in order to serve as a guide for establishing a temperature for keeping quality tests. Presently, a number of laboratories are using either 40° or 45°F. for studies on keeping quality. This investigation reveals that, for the area studied, 45°F. is quite representative of commercial conditions. The data also indicate that some processors can decrease the rate of bacterial growth by cooling milk to a lower temperature before bottling and maintaining lower temperatures throughout distribution.

After bacterial counts were made of milk in distribution channels for one year, "line-run" samples were taken the following year to determine sources of contamination within the plants. As this type of testing progressed, improved bacteriological quality occurred because of the adoption of improved practices in cleaning and bactericidal treatment.

An increase in flavor score with an increase in bacterial count, as reported by Dahlberg *et al.* (2), was not noted in this study.

SUMMARY

A survey was made to determine if there were differences in the bacteriological quality and keeping quality of milk supplied to an Indiana city by three local and four "outer-market" processors.

Total, coliform, and psychrophilic bacterial counts on milk at different points in the distrbution system showed that, at the time of bottling, milk processed locally had somewhat lower total and psychrophilic counts but higher coliform counts than milk processed outside the market. However, after storage for 5 days at 45°F., there was little difference between milk processed within and outside the market.

Milk was bottled warmer by local processors than by outer-market processors. However, when delivered to stores, locally processed milk was colder. Throughout the distribution systems, temperatures of 41° to 45° F. were the most common.

Line tests showed that milk contained <1 coliform organism per ml. at the pasterizer but some psychrophiles were present. With freshly bottled milk, the extent of contamination was more evident from coliform counts than from psychrophilic counts.

The flavor scores of milk decreased with storage at 40° or 45°F. and the change in score was gradual and not abrupt. None of the samples were without flavor criticism after holding 5 days at 45°F.

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INSECTICIDE RESIDUES IN MILK AND MILK PRODUCTS[1]

II. Insecticide Residues in Milk from Dairy Cattle Fed Treated Crops

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Introduction

Chlorinated hydrocarbon and organic phosphate insecticides are commonly used by farmers to control insect infestations of various feed crops during the growing season. Residues of insecticides may be present on such feeds (hay, corn, pea vines, etc.) and hence consumed by dairy cattle. This paper will attempt to summarize information on insecticide residues in milk from dairy cattle which have ingested such treated crops. Information on insecticide residues in milk from the treatment of dairy cattle and barns has been summarized in a previous paper (*26*). Another paper will summarize information on insecticide residues in dairy products and associated problems (*25*).

Chlorinated Hydrocarbon Insecticides

DDT

The presence of DDT residues in milk from dairy cows who ingested feeds treated with the insecticide was reported in 1947 (*4, 31*). Carter (*4*) found 1.5 to 25 p.p.m. and Schechter, *et al.* (*31*)reported the presence of three to 26 p.p.m. of DDT in the milk obtained from cows which were on a diet of treated feed.

Shepherd, *et al.* (32) aerosol treated two plots of alfalfa with 0.6 and 2.4 pounds of DDT per acre respectively. Hay was made from the treated alfalfa and fed to dairy cows daily at the rate of 1.5 pounds per 100 pounds of body weight if it was sprayed with the low concentration of DDT or one pound per 100 pounds of body weight if sprayed with the high concentration. Milk from cattle receiving the former contained a maximum of 0.9 mg. of DDT per g. while that from the cows receiving the latter contained up to 10.1 mg. per g. These investigators found the insecticide in milk three days after the hay feeding had begun and also 160 to 170 days after feeding was discontinued if hay with the higher concentration was fed. Persistence of the insecticide in the milk dropped to 30 to 40 days when the low concentration was fed. From 5 to 30 per cent of the DDT ingested by the cow was recovered in its milk.

Alfalfa was sprayed with 0.25 pounds DDT per acre ten days before cutting in experiments reported by Smith *et al.* (33). The resulting hay contained between seven and eight p.p.m. of residual DDT. When it was fed to cows, DDT appeared in milk at the rate of 2.3 to three p.p.m. Later one half of the hay was replaced with untreated hay and the DDT content of the milk dropped to two thirds of the former value.

Wilson, *et al.* (*37*) studied DDT residues in silage made from dusted pea vines. It was estimated that about one pound of DDT was applied to six tons of vines during the dusting operation, however, less than one p.p.m. was found in the silage at feeding time. No DDT was found in milk produced by cattle fed this silage.When cows were fed pea vine silage to which one pound of DDT per ton was added at the time of ensiling, 15 p.p.m. of the insecticide appeared in the milk.

These experiments were further discussed when an accumulation of DDT in certain body tissues was reported (*2*). It was observed that 3.8 p.p.m. accumulated in muscle tissue, 6.1 p.p.m. in the liver and 221 p.p.m. in depot fat. Calves which received milk from cows fed DDT-containing pea vines had 3.1, 6.2 and 305 p.p.m. in similar tissues, respectively.

Carter *et al.* (*6*) reported the presence of less than 0.5 p.p.m. DDT in milk from cows fed silage made from pea vines sprayed previously with 0.4 to 0.5 pounds of insecticide per acre.

Silage was made from sweet corn which was dusted with 20 to 35 pounds of a five per cent DDT powder per acre either two or four times during the growing season (*21*). Milk produced by cows which received this silage contained 0.1 to 0.5 p.p.m. of residual DDT.

When lush pastures were treated with two pounds of DDT per acre and grazed immediately, a "sweetish" taint appeared in the milk (*27*). This was associated with an increase in DDT concentration.

DDT was fed directly to dairy cattle by Wingo and Crisler (*38*). They found that cows which received either 25 doses of 20 g. each or 21 doses of five g. each, showed signs of stiffness and excitability. Milk from

[1] Second in a series of three review articles on this subject which will appear in this Journal.

the treated animals was toxic to houseflies for eight to nine days after the final dose of insecticide had been administered. Similar experiments were carried out by Ely *et al.* (*13*) and they found: (*a*) higher concentrations of DDT in milk when cattle consumed it as a residue on feed than when the insecticide was fed directly; (*b*) there were no consistent differences in DDT-residues in milk when it was fed mixed with soybean oil or in the crystalline form; and (*c*) feeding DDT in the form of capsules or mixing with grain had no effect on the concentration present in milk.

Alekseeva (*1*) reported the presence of DDT in milk drawn from cows 42 to 45 days after they were treated with doses 35 to 40 times higher than normally would be ingested.

Telford (*36*) noted the presence of DDT in milk from goats which were fed either 0.68 or 1.25 gm. of DDT per pound of body weight.

The accumulation of DDT in soils as a result of spraying practices has been observed by Ginsburg (*17*) and Lichtenstein (*23*). Larger quantities of DDT were found in soils of apple orchards and smaller amounts in soils on which potatoes were grown (*17*). The DDT was present in the soil layer which correspond to plowing and cultivation depths. Lichtenstein (*61*) reported that the upper six inches of soil from turf plots contained 11 to 18 per cent of a single DDT treatment applied ten years earlier. Crop soils showed an accumulation of 15.5 per cent of the DDT applied during a ten year period. Such insecticide accumulations could be additional sources for milk contamination.

Methoxychlor

Four plots of alfalfa were sprayed with 0.48, 0.5, 1.0 and 1.94 pounds per acre of methoxychlor (*15*). When hay from these plots was fed to dairy cows, no methoxychlor could be detected in the milk produced. Cows were fed crystalline methoxychlor in soybean oil and it was noted that 100 times as much methoxychlor as DDT had to be consumed by cows before detectable amounts of the insecticide appeared in milk. Ely, *et al.* (*15*) believed that methoxychlor would not be excreted in the milk by cows which were fed forages sprayed with recommended concentrations of the insecticide.

Benzene Hexachloride and Lindane

Dry, closely grazed pastures were treated with two pounds of lindane or technical benzene hexachloride (mixed isomers) per acre (*27*). Cows were permitted to graze the pastures three weeks after treatment. Milk, cream and butter produced by cows on the lindane treated pasture were free from taints although the butter contained 4 to 6 p.p.m. of BHC. An "earthy" or "musty" taint was noticed in milk, cream and butter produced by cows on the BHC treated pasture. The butter, in this instance, contained 16 to 18 p.p.m. of BHC. When similar treatments were applied to long, wet pastures which were grazed immediately, marked taints and high levels of insecticides were found in the resulting milk, cream and butter.

Lindquist and Donaldson (*24*) reported an instance where benzene hexachloride-treated potatoes were fed to dairy cattle. An off flavor similar to that found in the potatoes was noticed in milk produced by these cows.

Dieldrin

Alfalfa was treated with one and four ounces of Dieldrin per acre (*18, 34*). The alfalfa was cut seven days later and stored as hay for four months after which it was fed to dairy cattle for 112 days. Weekly milk samples were tested and dieldrin was found in the milk of cows who consumed hay previously treated at either of the two indicated levels.

Ely, *et al.* (*12*) found 0.8 and 1.8 p.p.m. of dieldrin in the milk produced by cows which were fed alfalfa hay previously sprayed with either 3.5 or seven ounces of insecticide per acre.

Pastures were treated with granulated dieldrin at the rate of 0.53 or 4.18 pounds per acre in experiments reported by App, *et al.* (*3*). Milk produced during the first 21 days after treatment by cows grazing on the former contained 0.11 to 0.18 p.p.m. of dieldrin while that from cows grazing on the latter contained 0.04 to 0.96 p.p.m.

Chlordane

Two plots of alfalfa were treated with a chlordane emulsion at the rates of one and two pounds per acre (*5*). Hay made from this alfalfa contained an average of either 20.4 or 20.8 p.p.m. of chlordane. Cows receiving this for a period of 150 and 100 days produced milk that contained from none to 0.2 p.p.m. of insecticide. Larger dosages of chlordane in soybean oil, when administered to cows, resulted in an increase in milk residues.

Heptachlor

Forage was sprayed with either 3.8 or eight ounces of heptachlor before it was made into hay in experiments reported by Ely *et al.* (*14*). When the hay was fed to cows, no heptachlor or heptachlor-epoxide (a metabolic product of heptachlor) was detected in the milk. A minimum intake of 1.3 mg. of heptachlor per kg. of body weight was necessary before heptachlor-epoxide appeared in the milk of a dairy cow.

Stoddard, *et al.* (*34*) and Harris, *et al.* (*18*) found heptachlor-epoxide in the milk from cows which were fed alfalfa hay made from forage which was treated

with heptachlor at the rate of four ounces per acre.

No heptachlor was found in milk by Polen, *et al.* (*30*) when the feed ingested by Holstein cows for a period of 20 days contained zero, one, 10, 50, 62.5 or 75 p.p.m. of heptachlor. Heptachlor-epoxide was found in milk only when levels greater than 10 p.p.m. were fed.

Aldrin

This chlorinated insecticide is related to dieldrin and is used primarily for the control of soil insects. Aldrin is more volatile than dieldrin, DDT or toxaphene and hence has a shorter residual action when sprayed on plants (*22*).

Kitselman, *et al.* (*20*) found no trace of aldrin in milk when hay made from previously sprayed forage was fed to a Jersey cow for more than 91 days. The work of Ely, *et al.* (*16*) showed similar results when no aldrin was found in milk of cows fed hay from forage previously sprayed with 3.9 ounces per acre. They further noted that aldrin had to be present in the diet of dairy cows at the rate of 28 p.p.m. before the insecticide appeared in the milk. Where sufficient aldrin was ingested, 11 to 14 per cent of the quantity administered was excreted in the milk.

Endrin

This chlorinated insecticide is related to both aldrine and dieldrin. It is most commonly used to control certain tobacco and vegetable pests together with cutworms in small grains (*22*). Ely, *et al.* (*11*) found less than 0.05, 0.14 and 0.15 p.p.m. of endrin in the milk of cows which received hay with residues of 1.9, 2.8 and 3.7 p.p.m. respectively. It was further noted that at least 20 mg. of endrin had to be ingested daily before the insecticide appeared in the milk of dairy cows.

Experiments were reported by Kiigemagi, *et al.* (*19*) in which dairy cattle were fed endrin in concentrations of 0.10, 0.25, 0.75 and two p.p.m. of their total diet. The insecticide was recovered from the milk after one week regardless of the concentration fed. Levels of endrin in the milk increased with both concentration fed and length of time of feeding. Residues of the insecticide were found in milk six weeks after final administration when the diet contained 0.25 p.p.m. or more. No endrin accumulated in the brain, heart, or kidney tissues while levels of 0.1 to 0.2 p.p.m. accumulated in the liver, 0.2 to 0.8 p.p.m. in renal fat, 0.1 to one p.p.m. in body fat and 0.1 p.p.m. in the roast.

Street, *et al.* (*35*) fed cows hay which was treated before harvesting with 1.5, three or 16.0 ounces of endrin per acre. Milk from these cows contained less than 0.1, 0.1 to 0.3, or 0.3 to 1.7 p.p.m. endrin. Cows which received highest levels of the insecticide showed clinical symptoms, reduced levels of food consumption and milk and butterfat production.

Toxaphene

Alfalfa was treated with a toxaphene emulsion at the rate of 1.5 pounds per acre (*5*). Hay was made and later fed to cows for 150 or 100 days. The average toxaphene content of the milk from the two sets of cows was 0.5 and 0.1 p.p.m. When larger doses of the insecticide in a soybean oil solution were administered, a higher concentration of toxaphene appeared in the milk.

ORGANIC PHOSPHATE INSECTICIDES

Organic phosphate insecticide residues on plants consumed by dairy cattle generally do not appear in the milk of such animals.

Dahm *et al.* (*10*) fed parathion to dairy cows at levels of one, five and 40 p.p.m. based on quantities of feed consumed. No parathion was found in milk from such animals when it was tested by both chemical and biological procedures. Alfalfa hay with parathion residues of 14 p.p.m. was fed to dairy cattle in experiments reported by Pankaskie, *et al.* (*28*). Both milk and jugular blood were analyzed and neither parathion nor free p-nitrophenol (believed to be a hydrolytic product of parathion) were detected.

Demeton, an organic phosphate systemic plant insecticide, was fed to a cow daily for three days in increasing doseages from 0.1 to 2.5 mg. per kg. of body weight in work reported by Dahm and Jacobson (*9*). Some cholinesterase inhibiting substances (believed to be the insecticide) were deteced in milk after the highest level of demeton was fed. They disappeared one day later. No cholinesterase inhibiting substances were present in milk when 0.29 to 1.0 mg. of Systox per kg. of body weight was ingested. Systox is a preparation which contains an emulsifying agent and 21.2 per cent by weight of a mixture of the thiono- and thiol-isomers of demeton.

In recent work with Phosdrin (O, O-Dimethyl 1-carbomethoxy-1-propen-2-yl phosphate), Casida, *et al.* (*7*) found no significant residues in milk or tissue of cows which were fed concentrations of one, five and 20 p.p.m. in feed daily for 12 weeks.

The absence in milk of organic phosphate insecticides after their ingestion by dairy cattle is explained in part by the work of Cook (*8*). He found that all of the organic phosphate insecticides tested were partially or completely inactivated by the cow's rumen fluid. More recently Plapp and Casida (*29*) found that Trolene (O, O-dimethyl O-(2, 4, 5-trichlorophenyl) phosphorothicate) was hydrolyzed at either the methyl-phosphate or phenyl-phosphate bond by bovine rumen fluid.

SUMMARY

When feeds treated with chlorinated hydrocarbon insecticides were fed to dairy cattle, residues of benzene hexachloride, chlordane, DDT, dieldrin, endrin and toxaphene appeared in the milk. Aldrin, heptachlor and methoxychlor were not detected in significant amounts. Maximum levels of insecticide present in milk ranged from 26 p.p.m. for DDT to 0.05 p.p.m. for endrin.

Residues of organic phosphate insecticides also occur on feeds and hence are ingested by dairy cattle, however, they generally do not appear in milk. It is believed that the insecticides are broken down in the rumen.

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NEWS AND EVENTS

QUESTIONS AND ANSWERS

Note: Questions of technical nature may be submitted to the Editorial Office of the Journal. A question in your mind may be in the minds of many others. Send your questions in and we will attempt to answer them.

QUESTION:

Is there a rapid method for estimating the bacterial content of precooked frozen foods?

ANSWER:

Straka and Stokes (Food Research **22**: 412-419. 1957) have developed a rapid resazurin reduction method which permits estimation of low, intermediate and high levels of bacteria in precooked frozen foods within a few hours. An important feature of the method is the addition of a culture medium to the food sample which stimulates bacterial growth and thus speeds reduction of the resazurin. In the standard method, 5 ml. of a 1:5 dilution of the blended food sample and 5 ml. of trypticase soy broth are mixed with resazurin and incubated at 37° C. The time required for the mixture to change from blue to colorless is recorded.

The resazurin reduction time and the number of bacteria present were determined for each of 77 pies. On the basis of these data, three classes which correlate bacterial concentrations and reduction times were established. Class 1 contains pies with less than 100,000 bacteria per gram and these require 5 hours or more to reduce resazurin. In Class 2 are pies with 100,000 to 1,000,000 bacteria per gram and these take 3 to 5 hours to reduce the indicator. Finally, in Class 3 are the pies with more than 1,000,000 bacteria per gram and these reduce resazurin in less than 3 hours. The degree of predictability of these categories from the reductase test ranges from 90 to 95%.

QUESTION:

How may the quality of shrimp be improved in terms of our present day knowledge?

ANSWER:

Evidence presented by Fieger, Bailey and Novak (Food Technol., **12**: 297-300. 1958) stresses need for rapid processing of freshly caught shrimp. For superior quality retention during ice storage, shrimp should be removed from trash fish and headed within an hour or as soon as possible after being caught. This treatment should result in removal of sand veins, high in bacteria, and may retard melanosis appreciably during storage. Adequate washing after heading should also contribute a beneficial effect on the ice storage life of the product.

QUESTION:

What is being done concerning new methods for the investigation of *Escherichia coli* in milk?

ANSWER:

Sotillo and Luco (Arch. Zootecnia, **6**: 367-378. 1959) of Spain recently reported a method based on the use of naphalene, ethyl alcohol and acetic acid. The milk tested is previously treated with one per cent potassium nitrate, and then incubated. The development of a red ring in tested milk is considered to be a positive reaction for the presence of *E. coli* in the milk.

QUESTION:

Does the shell membrane have a protective role in bacterial spoilage of eggs?

ANSWER?

The egg shell, free of membrane material, cannot restrain the passage of bacteria when the latter are filtered through the shell. In contrast, the outer shell membrane removes 98-99 per cent of the bacteria and the combination of outer and inner membranes removes all of the bacteria from an aqueous suspension which contains as many as 20 million bacteria per milliliter. The results of recent reports suggest that the bacterial penetration of shell membranes does not involve extensive proteolytic attack. (Garibaldi and Stokes, Food Research, **23**: 283-289. 1958).

QUESTION:

What constitutes a chemical preservative?

ANSWER:

The term chemical preservative under the Federal Food, Drug, and Cosmetic Act means any chemical that, when added to food, tends to prevent or retard deterioration thereof, but does not include common salt, sugars, vinegars, spices or oils, extracted from spices, substances added to food by direct exposure thereof to wood smoke, or chemicals applied for insecticidal or herbicidal properties. A fruit or vegetable will not require a preservative statement if the chemical preservative is applied as a pesticide chemical prior to harvest. (Federal Register, **23**: 2214, April 4, 1958).

OREGON STATE TO OFFER COURSE IN SHELLFISH SANITATION

A course of training in "Shellfish Sanitation" will be offered July 6-10, 1959, at the Oregon State College, Corvallis, Oregon, by the Public Health Service's Robert A. Taft Sanitary Engineering Center to engineers, scientists, and others engaged in shellfish sanitation control. Public Health practices and laboratory procedures applicable in safeguarding the sanitary quality of oysters and clams are emphasized. The course consists of lectures by staff members and consultants, demonstrations, and laboratory practice.

Among the lecturers in the course will be Cornelius B. Kelly, Chief, Shellfish Sanitation Laboratory located at Purdy, Washington, Eugene T. Janset, Chief, Shellfish Sanitation Section, Milk and Food Program, and Keith H. Lewis, Chief, Milk and Food, Sanitary Engineering Center, Public Health Service, Department of Health, Education, and Welfare. Other authorities on shellfish sanitation from health agencies and universities on the Pacific Coast will also participate in the presentation of the course.

Included in the agenda are the following topics: (1) shellfish sanitation problems; (2) biology and ecology of bivalves; (3) sanitary bacteriology of shellfish; (4) methods of bacteriological examination of shellfish and shellfish bearing waters; (5) preparation of samples; (6) coliform tests; fermentation tube methods, membrane filter techniques, and differentiation

of coliform group organisms; (7) plate counts; (8) chemical methods for control of shellfish sanitation; (9) assay procedures for paralytic shellfish poison; (10) growing area sanitation: collection and evaluation of hydrographic data, bacteriological surveys, and classification of growing area; (11) effects of radionuclides on shellfish; (12) industry practices: harvesting, processing, and marketing; (13) interstate shellfish certification program; (14) discussion of general and local problems.

Applications should be addressed to the Chief, Training Program, Robert A. Taft Sanitary Engineering Center, 4676 Columbia Parkway, Cincinnati 26, Ohio or to a PHS Regional Office Director.

FOOD MACHINES DISPENSE COMPLETE MEALS IN FULLY AUTOMATIC FEEDING OPERATION

Food dispensing machines which automatically serve a selection of complete meals "in the plant" to industrial working forces have been developed.

These coin-operated food machines — highlighted by the "hot platter" unit which actually cooks 50 meals at a time in aluminum containers, then dispenses them individually — serve a choice of hot platters, cold platters, sandwiches, soup, pastries, milk and milk shake in a cup, as well as coffee, tea and hot chocolate.

Four or five machines — a hot platter, a cold buffet, a bulk milk, and one or two coffee, tea and hot chocolate combinations — normally comprise one full bank of equipment. In combination, the machines in each bank dispense the complete selection of foods. These machines are now being supplied to industrial concerns across the country either in individual units or full banks depending upon company needs.

Plant employees point to the quality and quanitiy of portions served, menu variety (hot platters presently come in 32 combinations, each including a meat or fish dish and two vegetables), the quick service resulting in longer actual "sit down" lunch time, and the enjoyable absence of usual "kitchen clatter" as their chief reasons for liking the new automatic system.

TEST MILK FAT AND MILK SOLIDS IN LONGEVITY STUDIES WITH RATS

How is diet related to length of life? What are the roles of milk fat and milk solids?

Some of the answers are noted in research findings recently reported in the Journal of Gerontologia. This 3-year nutrition study was directed by Dr. Clive McCay at Cornell University and supported jointly by American Dairy Association, National Heart Institute, Dental branch of the Office of Naval Research and the Rockefeller Foundation.

The test animals were 200 white rats. Recognizing that the results do not necessarily apply to human beings, this comprehensive lifetime study does offer some valuable evidence on longevity effects of different diets; it is pointed out by Dr. D. H. Jacobsen, research director of the American Dairy Association, in listing the following observations:

1. The diet differences definitely did influence life span.

2. Higher butterfat consumption, 27 percent of the calories in the diet promoted longer life.

3. Superior teeth in old age were shown by the group of rats fed high fat diets containing potatoes, or milk-rich bread.

5. Source of carbohydrates played a part in extending the life span, with potatoes and "special" milk-rich bread giving superior results.

Back in 1954, nutritionist Clive McCay and his coworkers began a series of feeding experiments with 10 groups of 20 white rats each. Equal numbers of males and females were included.

The basal diet, fed in the same amount to all 200 rats, was a mixture of human foodstuffs similar to that eaten by one-third of the Americans who make the poorest choices of food.

The supplements to the basal diet consisted of two different food fats, butter and oleomargarine, fed at a low level of 5 per cent and a higher level of 27 per cent of total calories.

The second supplements, rich in starch, were selected to compare three common human foods: (1) potatoes and skimmilk; (2) a "special" bread rich in nonfat dry milk; and (3) an ordinary bread made mostly from refined white flour.

The special bread, called "Cornell bread" was a type commonly used in schools and hospitals throughout New York state. In its formula were combined 8 pounds of nonfat dry milk solids, 2 pounds of wheat germ, and 6 pounds of full fat soy flour for each 100 pounds of "enriched" white flour.

Figuring 500 days equal to about 50 years in man, only 14 per cent of the group fed "special" milk bread diet failed to live this long but 42 per cent of the group receiving the ordinary bread supplement died before the age of 500 days. In the group fed potatoes, with butter as the source of fat, four females exceeded 1,000 days each, equivalent to 100 years in man.

While these studies did not show any significant difference from feeding different types of fats, it is pointed out that the higher level of butterfat consumption (27 per cent of the calories) did not cause any abnormal conditions which shortened life.

LADIES' ACTIVITIES
for the
46th Annual Meeting
of the
International Association of Milk and Food Sanitarians
Glenwood Springs, Colorado
August 25-28 1959

Many interesting activities are being planned by the Ladies' Entertainment Committee for your pleasure during the I.A.M.F.S. Convention. Miss Lindy Lou Hubbard and Mrs. Neven Kilpatrick of the Denver Dairy Council are the Ladies' Entertainment Committee Chairman and Co-Chairman, respectively.

The Denver Dairy Council will host an informal "Milk Punch" party Tuesday afternoon, August 25th, so we can all get acquainted. Special sightseeing trips are planned for Wednesday and Thursday to include the Maroon Bells, Ashcroft, Aspen and the area in and around Marble. We will have a speaker, well-versed on Colorado history, to tell us about the areas.

Qualified baby sitters for convention guests *not* in Hotel Colorado may be had at a nominal hourly rate.

Children's Counselors are provided for the children by Hotel Colorado for those staying there, from approximately 8:30 a.m. until 6:30 p.m. The children must be about 4 years old or over. Their activities will include nature hikes, swimming, fishing, etc. A special fishing place for children under 14 years has been arranged. A childrens' banquet is planned to entertain small fry while their parents enjoy other evening entertainment. This year we will also have Mr. Harry Stoll, a leathercraft specialist, on hand to give individual instructions for making inexpensive leather souvenirs.

Be sure and bring your bathing suit as there is both fresh and mineral water pools available. Glenwood Springs is famous for steam baths. Informal clothing is in order for the entire convention. You will need comfortable walking shoes and perhaps a raincoat. Glenwood Springs has warm days and cool nights so jackets and warm clothing are also necessary.

A most pleasant and interesting time awaits you during the week of August 24, 1959 in Colorado. We are looking forward to your visit.

3-A SYMBOL COUNCIL AUTHORIZATIONS ISSUED, AMENDED, OR NOT RENEWED MARCH, 1959

Following is a list of concerns to which 3-A Symbol Council authorization to use the 3-A Symbol have been issued since publication of the list in the April 1959 issue of the Journal. This list supplements other listings published in earlier issues of the Journal.

Authorization Number	Concern and Address	Model Numbers
	ELECTRIC MOTORS	
113	The Louis Allis Co. 427 E. Stewart Street Milwaukee 1, Wisconsin	DI and D: Built in 203, 204, 225, 254, 284, 324, 326, 364, and 365 frames.
	TANKS – FARM	
19	Brown Equipment Company Coalville, Utah	Add: RC-100, 150, 200, 250, 300, and 350. RSC-100, 150, 200, 250, 300, and 350.
56	Houston Fearless Div. Color Corp. of America 11801 W. Olympic Blvd. Los Angeles 64, California	Authorization not renewed upon expiration, by decision of the holder.
12	Paul Mueller Company 1616 W. Phelps Street Springfield, Missouri	Add: "MC": 400 and 700 gal. "MCS": 400 gal.
88	Steel & Tube Products Co. 200 W. Olive Street Milwaukee 12, Wisconsin	Authorization not renewed upon expiration, at the request of the holder.
	TANKS – TRANSPORTATION	
70	Jacob Brenner Company 450 Arlington Avenue Fond du Lac, Wisconsin	Add: 58TL – 1600 to 2500; NE – 1200 to 3500; NETR – 2500 to 5000.

THE OHIO STATE UNIVERSITY HOLDS 8TH ANNUAL SHORT COURSE

A full registration of 55 persons, representing health departments and Dairy Industries, participated in the 8th Annual Ohio Milk Sanitation and Public Health Short Course held on the Ohio State University Campus March 16-20. This particular course was sponsored cooperatively by the Ohio State University Department of Dairy Technology, and the Ohio Departments of Health and Agriculture.

The course program was designed along clinic lines. Two sections of the course were held simultaneously: One section for those who had not previously been in attendance at the Short Course or were just beginning in dairy inspection or plant work, and the second section for those who had previously had the Short Course or had had considerable dairy experience.

In Section I, specific attention was given to inspection methods, techniques, and interpretations based on the U. S. Public Health standard ordinance, and fundamentals of cleaning and sanitizing equipment. Field trips were made to dairy plants and farms in order to obtain first hand information on inspection practices and procedures. In Section II, emphasis was given to engineering procedures and layout methods as they involve farm and plant CIP systems, dairy plant equipment, high-temperature short-time equipment and operations. In-plant studies were conducted on dairy plant equipment and its operation and design from the public health standpoint.

Public health aspects of the milk supply were considered in one session with discussions being presented on herd health, antibiotics, radioactive contamination, insect and rodent control, bacteriological problems in modern farm production, Grade A requirements for special products, such as cottage cheese and frozen desserts.

A pipeline milking system was installed and studied in detail from the standpoint of farm sanitation practices. In addition, specific attention was given to instrumentation as related to short-time processing, and to the testing of continuous flow milk processing equipment.

Approximately 20 visiting speakers participated in the program. One of the features was a key note address by Dr. W. M. Roberts, Head, Dairy Manufacturing Section, North Carolina State College, who discussed "Regulations, Aids or Hindrances to the Dairy Industry". Other visiting speakers included L. C. Peckham, Regional Sanitarian, U. S. Public Health Service, Chicago; F. Holman, The Babson Co., Chicago; D. A. Seiberling, Dairy Consultant, Klenzade Corporation, Beloit, Wisconsin; Glenn Wagner, Northeastern Ohio Cooperative Milk Producers Association Manager; J. H. Erb, Vice-President, the Borden Company, Mid-West Division, Columbus; C. K. Ortman, Production Manager, M & R Dietetic Laboratories, Columbus; L. C. Burkey, Creamery Package Manufacturing Company, Toledo; T. A. Batsche, Cincinnati Health Department; E. P. Hicks, Taylor Instrument Company, Worthington, Ohio; K. T. Yoder, Diamond Milk Company, Columbus; J. D. Bowers, The Borden Company, Columbus.

A typical scene of the small group discussion periods held as a part of the Short Course in Milk Sanitation and Public Health. This scene shows a discussion and demonstration of the cleaning of milking machines by H. E. Randolph of the Department of Dairy Technology. Simultaneously, similar small groups were having discussions on various phases of dairy plant equipment and operations as they related to equipment design and sanitation practices.

A REPORT ON SOME OF THE ACTIVITIES OF THE EXECUTIVE BOARD AND COMMITTEE MEMBERS SEPTEMBER 1958 — MARCH 1959

President elect W. V. Hickey visited with several groups of our South Carolina affiliates acquainting them with activities and problems of IAMFS. (September 1958).

Sr. Past President Paul Corash and Sam Lear of our Education and Professional Development Committee attended a National Health Council Conference on Recruitment of Personnel in the Health Field in New York City October 2-3, 1958.

Karl Jones of our Education and Professional Development Committee attended a National Health Council Conference on Manpower Shortages in the Field of Health at St. Louis on October 30, 1958.

H. S. Adams and W. V. Hickey attended a meeting of the Sanitarians Joint Council in St. Louis during the APHA meetings.

J. C. Olson Jr. represented our association at a meeting called by Luther Black to discuss Certification of Media for the bacteriological examination of products by standard methods. (October 26, 1958).

President Barber on December 11 and president elect Hickey on December 15 attended meetings called by Secretary Fleming of the Department of

Health, Education and Welfare in Washington to discuss various aspects of the Health, Education and Welfare program.

Junior Past President H. B. Robinson represented IAMFS at a meeting in Washington (January 1959) called by a committee of the American Dairy Science Association to investigate the possibilities of the next International Dairy Science Congress being held in the U. S. A.

On February 26-28 the Executive Board held its interim meeting at the Morrison Hotel in Chicago.

On February 26-28 a subcommittee of the Advisory Committee on Association Activities, Program and Administrative Practices met in Chicago.

At the request of President Barber, Luther Black represented IAMFS at a March 3, 1959 meeting called by the American Standards Association to determine what action various Associations in this country should take toward a proposed study of the International Organization for Standardization regarding Apparatus for Testing Milk and Milk Products.

President elect W. V. Hickey represented IAMFS at the 1959 meeting of the National Health Forum in Chicago on March 16-20.

NATIONAL HEALTH COUNCIL — CONFERENCE ON RECRUITMENT FOR PERSONNEL IN THE HEALTH FIELD SPONSORED BY COMMISSION ON HEALTH CAREERS

The Commission On Health Careers

The Commission on Health Careers is a separate group which has been set up by the National Health Council and is really an outgrowth of Health Careers Project. Its objective, is of course, recruitment for health services. The Commission is made up of a group of citizens from various walks of life who have achieved national reputation in their respective fields. Among the problems which the commission has under consideration are the following:

A. The need to expand facilities of professional schools catering to the health field.

B. The need to provide adequate educational facilities in general.

The commission hopes to bring together the leaders of industry, education, government, professional associations etc., so that there may be a wide consideration of the problem of Health Career recruitment.

The thinking of the commission is national in scope and bears in mind the overall good of the country and not only the narrow field of health. In other words the commission tries to evaluate health needs as part of an socio-economic problem rather than from the relative narrow field of health alone.

The problem of Health Careers is more acute than ever because great emphasis is now being placed on engineering and scientific training and the fear exists that there may be some neglect of the health field.

The Commission hopes to get information on manpower needs, and will seek to evaluate the adequacy of the methods used as they relate to effective manpower use. The Commission will also try to get public support for public health needs by providing information. Five major areas are to receive the attention of the Commission as follows:

1. Personnel supply and demand factors.
2. Personnel utilization.
3. Factors affecting job satisfaction.
4. Education and training needs.
5. Recruitment.

Associations such as our own may be asked to provide data on the recruitment needs of our particular field.

The following is a very brief outline of some of the matters which were presented at the meeting:

1. There has been a general lack of coordination in the recruitment efforts in the following ways:

   a. As to the methods used.

   b. As to the materials used.

   c. As to the basic knowledge of the recruitment problems.

It was pointed out that a successful recruitment program must be based on the needs of the community, and a knowledge of the manpower resources which are available. In evaluating manpower resources, thought should be given to availability of older people, immigrant groups for specialized services, and the underdeveloped potential which is possessed by individuals; many people have untapped capacities which can be developed.

Some discussion was presented on those factors which influence choice of careers. In this connection the following items were stressed:

1. The prestige of an occupation is one of the strongest factors in a person's choice particularly from a social point of view. A survey in which people were asked to judge the socio-economic levels of an

occupation rated physicians, physicists and research chemists at the top of the list. Sanitarians were not rated, but it was brought out the social appeal of health work was not nearly as strong as its proponents believed.

2. The next item related to remuneration. From our point of view this item speaks for itself.

3. The socio-economic background of the individual seemed to be the next factor in the choice of an occupation. In general, persons who came from families having a lower socio-economic level were inclined to reach upward to those job occupations which represented an advance from their existing level. This would seem to indicate that persons with a high socio-economic level would not be particularly interested in health careers with the possible exception of those who had expectations of reaching high administrative levels.

Paul Corash—Reporter

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153 FROM 35 STATES ATTEND 7TH INTERSTATE MILK SHIPPERS CONFERENCE IN ST. LOUIS, MO.

The Seventh National Conference on Interstate Milk Shipments, held in St. Louis, Missouri, April 20-22, attracted 153 representatives of Federal, State and local public health and agriculture agencies, and of the dairy industry, from 35 states.

Conferees agreed unanimously that the recently revised "Methods of Making Sanitation Ratings of Milk Sheds" and the 1953 edition of the *Milk Ordinance and Code Recommended by the Public Health Service* shall be used by certifying officers for all interstate milk shipper ratings made after February 1, 1960. Until that time either the 1953 or the 1939 Revisions of the code may be used.

Five men were newly elected to the Executive Board of the Conference. They were George W. Hanson, Fergus Falls, Minnesota; Orville L. Hunnicutt, Columbus, Ohio; Park Livingston, Franklin Park, Illinois; Alexander Pais, Baltimore, Maryland; and Clinton V. Vandevender, Jackson, Mississippi. Mr. Harold Barnum of Denver, Colorado, was elected Chairman of the Conference; Mr. J. C. McCaffrey of Springfield, Illinois, Secretary; and Dr. M. D. Baker of Ames, Iowa, Treasurer.

The Conference is a voluntary organization which meets every two years to develop procedures which will facilitate the interstate shipment of milk of high sanitary quality to any area where needed. These procedures are used in the voluntary cooperative State-Public Health Service program for the certification of interstate milk shipments. The Public Health Service reported as of April 20 that there were 693 shipping plants in 35 states participating in the program. This compares with 530 in 33 states as reported at the 6th National Conference on Interstate Milk Shipments held in April 1957.

KLENZ-METER®

Low Cost Water Chlorination with Simple and Positive Metering Pump

Now every dairy farmer and small dairy can enjoy the many advantages of a reliably safe water supply with positive chlorination at the proper level. Costly equipment formerly necessary is now replaced with the new moderately priced Klenz-Meter — a diaphragm-type metering pump that provides accurate and precise feeding of Klenzade Liquid Sodium Hypochlorite into the water supply line. Assures safe drinking water as well as a constant supply of chlorinated wash water for milking equipment.

KLENZADE X-4 Liquid Sodium Hypochlorite

Supplied in gallon jugs for feeding directly into Klenz-Meter, thence into water line. Klenz-Meter can be adjusted to feed from 1 cc per stroke upwards to desirable concentration. Low chlorine cost per year. X-4 is also ideal, in proper use dilutions, for sanitizing milking equipment.

WRITE FOR LITERATURE

KLENZADE KLENZADE PRODUCTS, INC.
BELOIT, WISCONSIN
Systematized Sanitation ALL OVER THE NATION

NOTICE
CONSTITUTIONAL AMENDMENTS PASSED

Article VII of the Constitution requires that the results shall be reported by the Executive Board to the membership of the Association and that the Amendments shall be a part of the Constitution from the date of such report and notice by the Executive Board.

These Amendments were presented to the membership at the 45th Annual Meeting in New York City, September 11, 1958.

(*See July 1958 issue of Journal for Amendments*)

A tally of mail ballots cast indicated 510 Votes in favor and 7 against. Since a two thirds affirmative vote is necessary to amend, the amendments were carried.

This is official notice of changes Voted in the Constitution.

Vincent T. Foley
Secretary-Treasurer

TECHNICAL BULLETINS AVAILABLE

A series of thirteen bulletins recently prepared by the Cherry-Burrell Corporation is now available for distribution. The bulletins are designed to give industry and control officials information on equipment specifications, product flow and other data dealing with operation and use.

Bulletins are as follows:
G-557, Prechurn, G-560, Superplate Heat Exchangers; G-561, Aro-Vac Flavorizers; G-562, Homogenizers; G-563, Glass Bottle Fillers; G-564, Materials Handling Systems; G-564, A Mapes Paper Bottle Maker; G-565, Super Syrup Maker; G-567, Flexflo Pumps; G-569, Load-A-Matic; G-570. In Place Cleaning Systems, and a 2-A Premix Tank Filler Bulletin, G-568.

These can be obtained by writing the Corporation at Cedar Rapids, Iowa.

NEW POULTRY ORDINANCE SUPPLEMENT

The Public Health Service has recently released Supplement No. 1 to the Poultry Ordinance, 1955 edition.

This Supplement contains provisions dealing with ante-mortem and post-mortem inspection of poultry for wholesomeness. The Supplement has been published as a model to assist states, municipalities and other local health jurisdictions in the promulgation of regulations covering inspection for wholesomeness and to become an important component of poultry sanitation requirements.

The Supplement is identified as Publication No. 444. and may be obtained by writing the Public Health Service at Washington, D. C.

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LAUNCH CAMPAIGN FOR FLUORIDATION

The Federal Government has embarked on an all-out campaign to sell local communities on the value of fluoridation of water supplies to reduce dental caries.

Secretary Arthur S. Flemming of the Department of Health, Education, and Welfare, launching the effort at a news conference said enough money is available to HEW to tell the story "that needs telling" without asking Congress for an additional appropriation.

"I have come to the conclusion," he said, "that the problem amounts basically to this—The opponents of fluoridation are a militant minority; the proponents of fluoridation, as is so frequently the case with proponents of new health measures, are an unmilitant majority.

"It seems to me that what is needed is a militant majority for fluoridation."

Asked who were the opponents, the secretary said he couldn't pick out any one group, "because they vary from community to community." He emphasized that he respected the views of "honestly informed people" who, because of principle, opposed fluoridation. But he said that, on the basis of scientific evidence, he could not concur in their conclusions.

He noted that the value of fluoridation "has been proved over and over again," that more communities are adopting the protection, yet that the increase in population means the proportion of people benefiting from "this remarkable health measure" actually is decreasing.

He declared:

"The American Dental Association, the American Medical Association and virtually all other scientific and professional organizations having competence in the field have recommended the fluoridation of public water supplies."

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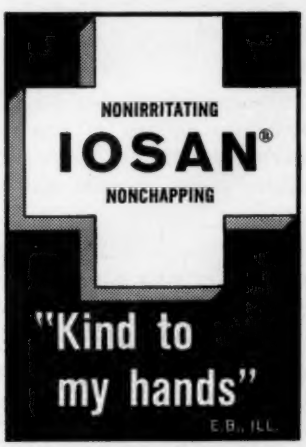

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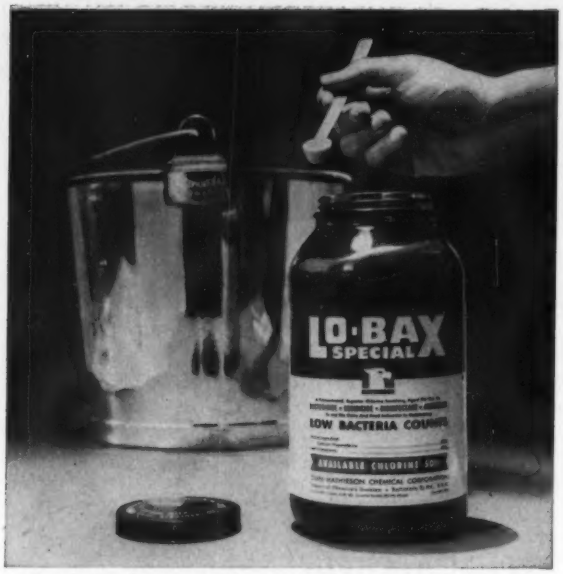

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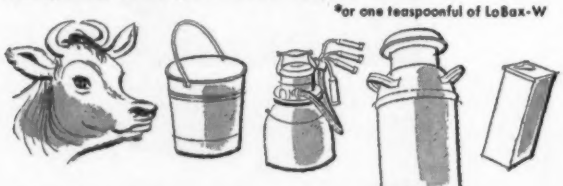

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LETTER TO THE EDITOR

THE UNIVERSITY OF NORTH CAROLINA
Chapel Hill

The School of Public Health — March 16, 1959
Department of Sanitary Engineering

Mr. George W. Hanson
Health Department
Fergus Falls,
Fergus Falls, Minnesota

Dear Mr. Hanson:

Your paper, "On the Training of Sanitarians," which appeared in the February, 1959 issue of the Journal of Milk and Food Technology, was read with considerable interest. The purpose of this letter is to indicate that the University of North Carolina does not have an undergraduate curriculum in sanitary science. The School of Public Health does have a curriculum leading to a Bachelor of Science in Public Health, but this is conducted by the Department of Public Health Education and is intended entirely for health educators.

Our Department does not offer an under-graduate curriculum in sanitary science, since we do not believe that such a curriculum is desirable except perhaps to meet specific needs for personnel in specific localities.

It is my feeling that advising an undergraduate student to take a program leading to a bachelors degree in sanitary science may be doing him a dis-service by restricting his field of activity. Further, we would prefer to recruit to our graduate program those who have undertaken a course in the basic sciences with work in mathematics, physics, chemistry, and biology, and a major in one of these. A student who takes applied courses in sanitary science at the undergraduate level must, of course, eliminate some of the basic sciences and humanities courses which would help him in his graduate work and which would prepare him better for professional status and later life. Applied courses must necessarily be so superficial that they would need to be repeated in graduate school, and thus, the time given to them is lost.

We feel that the people we are preparing, to be sanitarians and sanitary scientists for the future, will be involved with challenges not yet known to us. We already know of problems in radiation and air hygiene which were not known to the sanitarian of yesteryear. Preparation in applied work may fit a man in his immediate job, but it does not prepare him for growth. For example, the suggested undergraduate program shows only six credits of mathematics and three credits of statistical analysis. It would seem to me that the sanitary scientist of the future would have mathematics at least through calculus. Also, the complex problems of our environment certainly seem to require a sound foundation in biochemistry for all sanitary scientists.

While those who would employ the sanitarian may feel that they would like to have a man with undergraduate training in applied sanitary science so that he may move right into a health department position, I believe that we can do a greater service to the field of public health and to the individual scientist if we encourage him to take a strong undergraduate science program and give him such applied training as is required on an in-service basis. For those who have the ability to give leadership in a field, the science program would prepare them well for graduate study.

We are very much interested in reading the comments reported by you concerning the value of an undergraduate program in sanitary science. I hope that your paper is read by all those who have some influence in the field of education.

Sincerely yours,
Daniel A. Okun, Head

TENTH ANNIVERSARY MEETING OF THE FOOD LAW INSTITUTE AT THE METROPOLITAN CLUB IN NEW YORK CITY ON APRIL 22

This meeting was a gratifying success. For the attendance was a national one at high representative levels; and the program was appropriate to the occasion. The President read a report on the organization and first ten years of the FLI, which recorded its significant progress. Chairman William T. Brady, President of Corn Products, made a supplemental statement; and Mrs. Harvey W. Wiley made a complimentary one. Then Mr. George P. Larrick, United States Commissioner of Food and Drugs, paid a tribute to the FLI and presented an FLI award of distinction to Dr. Carlos A. Grau of Argentina, who came from Buenos Aires to receive it. Dr. Grau was chairman of the Committee of the Latin-American Chemical Congress, which drafted a uniform food code for Latin America. Last month the Congress approved this code at Mexico City and appointed Dr. Grau as the permanent chairman of it; and it promises to have a historic impact on the food law in Latin America.

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U.S.P. UNITED STATES PHARMACEUTICAL STANDARDS

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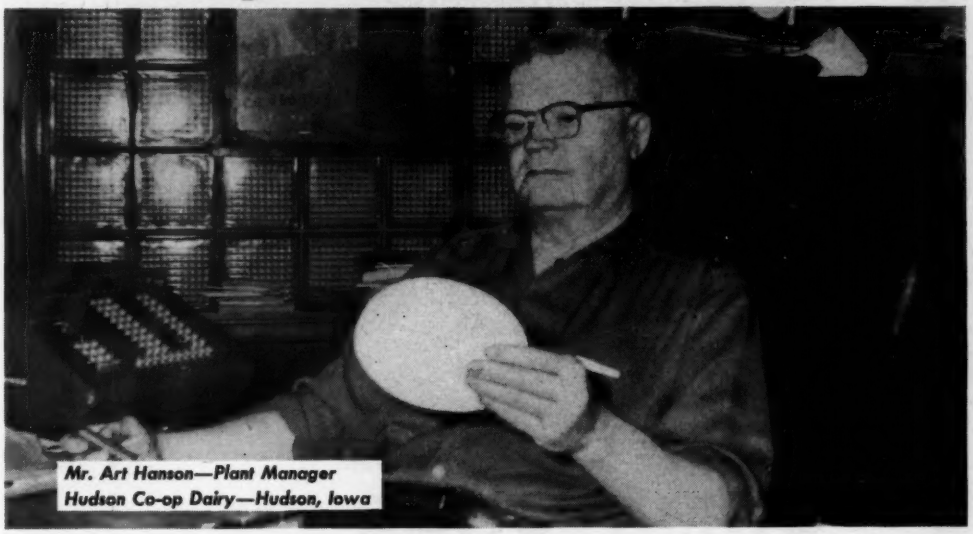

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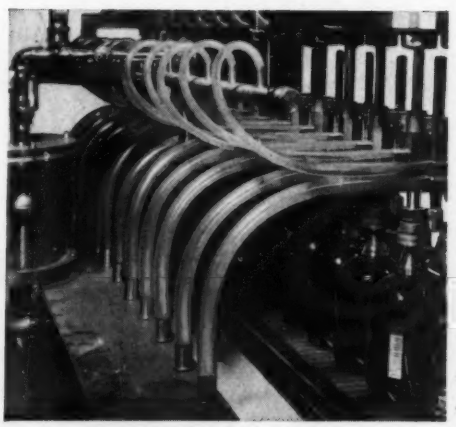

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